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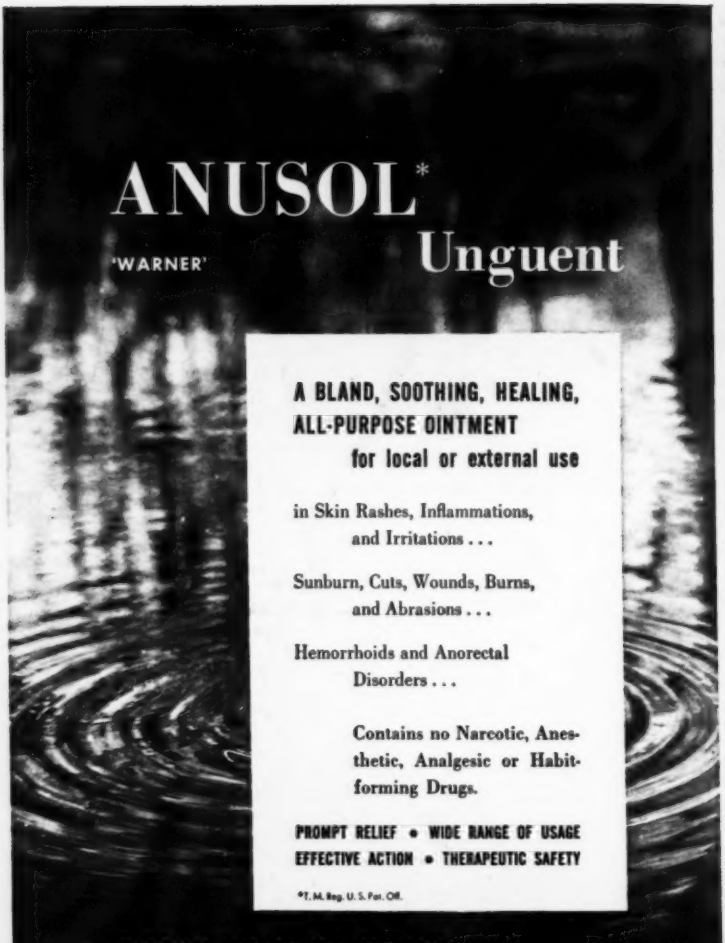
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EDITORIAL

Physiology and Pathophysiology of Dying

By FREDERIC R. STEARNS, M.D.
Editor

It is a somewhat astonishing fact there are very few—and almost no pertinent-papers on the physiology and pathophysiology of dying while there is an ever increasing number of publication on the physiology and pathophysiology of childbirth. O. E. Guttentag[1] has correctly pointed out that "dying, from the doctor's view point, is part of living. Death is not so much opposed to life as it is to birth. Individual human life per se implies both births and death as physiological phenomena".

To gain more knowledge about the process of dying will have not only scientific, but also practical significance. Acquiring more experience on its causative factors, on its impact on structure and function, may enable us to postpone death, as it has been proved already as being possible in animal experiments and by the improvement of resuscitation methods.

It is justifiable to speak of both physiological and pathophysiological dying. The first phenomenon is but the end phase of the process of aging while the second one is prompted either by trauma, in its broadest meaning, or by instrinsic pathologic reactions. Or, in order to put both aspects of the process of dying etiologically on one denominator, one may follow Selye's concept in stating that the process of dying is identical with the irreversible stage of exhaustion in the general adaptation syndrome.

In scrutinizing the scarce literature on the process of dying, one is impressed by the discovery how superficial and tautological (in logical presentation) most of these expositions are. And more than that, as Guttentag (l.c.) has aptly stated "the present day physiological textbooks . . . identify life with the characteristics of the young adult and do not even have the word 'death' in their indices." Everybody perusing the indices of a considerable number of textbooks on physiology or pathology (as this writer did) can confirm Guttentag's contention. To give just one example of the way the process of dying has been broached in older textbooks of physiology, we quote a few sentences from the standard textbook by Wm. H. Howell (7th edition. W. B. Saunders Company, Philadelphia, 1918, pp. 1019-20): "In every way there is increasing evidence, as the years grow, that the metabolism of the body becomes less and less perfect; the power of the protoplasm itself becomes more and more limited and we may suppose would eventually fail, bringing about what may be called natural death . . . The physiological evidences of an increasing senescence warrant the view . . . that death is a necessary result of the properties of living matter in all the tissues except possibly the reproductive elements. The course of metabolism is such that it is self-limited, and even if perfect conditions were supplied, natural death would eventually result. As a rule, however, death is, so to speak, accidental rather than natural."

EDITORIAL

Which are the definitions and biological evidences of: perfect metabolism, power of protaplasm, failing power of protoplasm, properties of living matter, self-limited metabolism? Essentially these, and similar, elaborations are but redundancies without clarifying interpretation or explanation.

In a recently published textbook of pathology (by Robert Allen Moore, W. B. Saunders Company, Philadelphia, 1951, pp. 1771-72) it is stated that "the best explanation (of 'physiological death') is inhibition of the heart through a reflex mechanism. In some instances this reflex originates in the pleura, in others in the eye or nose, in others in the heart itself, in others in the higher centers of the brain, and in others, probably, in the majority, in the carotid sinus." The mechanism mentioned in these instances is obviously a parasympathetic reflex effect. It is interesting, however, to remember in this connection that the inhibitory fibers of the vagus are almost inactive at birth, yet increase in tone up to age 25 to 35; then the irritability lessens again and decreases to death, so that the response in heart rates varies accordingly.[2] This would, paradoxically, point to the fact that the inhibitory action of the parasympathetic is least when the incidence of physiologic death is highest, namely in infancy and old age.

Moore refers to a possible involvement of 'higher centers of the brain' in this inhibitory reflex mechanism as a causation of dying. While the cardio-inhibitory center is situated in the medulla, there are apparently cortico-autonomic correlations between frontal lobe and autonomic nervous system, which, however, are not yet well understood. The influence of the cortex on the heart action has been evidenced essentially by animal experiments. Penfield and Rasmussen[3] have found no important representation of the cardiovascular system on the convexity of the cerebral hemispheres in man. But they admit that there has been occasional evidence of cortical control of heart action.

An interesting monograph on the physiology of dying,[4] one of the few methodical investigations in the literature, is concerned with the chemical alterations in the blood in agonal conditions. The author has performed 23 chemical and physiochemical measurements on 38 persons in dying state. He found a decrease of blood pH as a common phenomenon in agonal state. In 18 of the 38 cases, the pH values were less than 7.1; the lowest premortal value was 6.8. The author concluded that, thus, in one third of his patients acidosis was the cause of death since the pH values dropped below 7.0 before death, the lowest limit considered compatible with life. In most instances the acidosis was of a mixed type as both metabolic and repiratory acidosis was present. The author found plasma bicarbonate to be reduced only in one third of these cases while the carbon dioxide tension is frequently increased. The content of lactic acid in the blood was hightened in agonal conditions. There is, however, no correlation between the cause of death and the degree of acidosis (so that acidosis seems to be a general characteristic of dying); yet, the decrease in the pH value appears to be in direct relations to the loss of consciousness in the final stage of life.

It appears relevant, in this connection, that with increasing age "there is a shift in acid-base equilibrium of the blood in the direction

of minimal metabolic acidosis"[5], which may be the metabolic manifestation of a link between aging and physiological dying.

The Russian investigator V. A. Negovski,[6,7] also did research work on the process of dying with the purpose of gaining insight in the potentialities of revival of the organism. Assuming that the process of dying is a biological process with its own laws, he had laboratory animals killed and made observations of the agonal state. He found that there are definite stages in the physiology of dying and that in the early stages there is still a possibility of resuscitation. Thus, he differentiated between a 'relative' or 'clinical' death and a 'permanent' or 'biological' death. Relative death is the earlier stage in which 'life' has disappeared, but 'death' has not yet supervened; while the physiological functions have ceased, irreversible changes have not yet occurred in the tissues. Negovski also observed that the animals die in a reverse evolutionary order: the dying takes place opposite to the phylogenetic evolution of the species. The most highly developed organs, the last ones on the phylogenetic scale, die first: the specific senses, consciousness and intelligence are the first to disappear in the period of 'clinical' death. After the cerbral cortex, the most recent segment of the brain, the medulla loses its function and, with it, respiration, body temperature and certain reflexes vanish. Negovski also observed that complete anemia, following cessation of the heart action, results in cellular death, particularly of the sensitive cells of the central nervous system, within 5 to 6 minutes. On exsanguination experiments on dogs the P wave in the electrocardiogram disappeared during the process of dying. Oscillations resembling a levogram were detected early and finally diphasic oscillations appeared.

Considering the subject of electrocardiographic alterations[8] in dying due to heart failure, it has been found that electrocardiographic waves disappear before cortical waves cease in the electroencephalogram. Yet, the reverse takes place when dying is due to repiratory failure or to slowly developing circulatory failure. The reason for this latter phenomenon is the sensitivity of the cerbral ganglion cells to lack of oxygen and blood sugar.

Considering 'physiological' dying as the end stage of aging, the process, inasmuch as the present limited knowledge permits it, has been concisely described by Matzdorff.[9] He pointed out that the living cell consists of colloids, the mass of which increases by virtue of ferment activity. These forces of growth counteract entropy, and, thus, prevent aging of the cell. When the energies resulting from the laws of nucleus-cytoplasm relation interfere with growth, the cell divides or becomes subject to the law of entropy and ages. The loss of the faculty of cell division is a condition necessary for aging and dying. This is so-called 'endogenous' aging, a consistent precession of dying. (The theory of histo-chemical changes in the cell colloids as associated with the processes of aging, and, probably, dying, has been espoused by many investigators. We are referring, at random, to: P. Divry, J. Belge de neurol. et psychiatrie, 47: 65, February 1947—Karl Stern, Conference on the Problems of Aging. Josiah Macy, Jr., Foundation, New York, 1950, p. 62—A. A. Bogolomets. The Prolongation of Life. Translated by P. V. Karpovitch and

Sonia, Becker, Duell, Sloan & Pearce, Inc. New York, 1946, p. 14.).

Environmental, particularly meteorologic, influences on the physiology of dying have been pointed out by William O. Petersen.[10] A few quotations will suffice to demonstrate Petersen's observations. In explaining the changes produced by meteorologic factors in the internal environment of the organism, he emphasizes the effect of these meteorological influences: "Periods of relative anoxia, periods of increasing or decreasing acid output, of change in bacterial flora on our mucous membranes, of change in sedimentation time, or dehydration, when occurring in the sick individual, must be of importance of swinging the tide toward recovery on one hand or death on the other." . . . "In the overall survey of the crude death rate, 1) seasonal or meteorological effects are obvious; 2) there is a diurnal effect; 3) there are death cycles that are related to the annual cycle of meteorological variability; 4) association with sun spot cycle has been repeatedly demonstrated." . . . "While we think of illness as specifically due to bacterial infection, trauma, allergen, intoxication, etc., these 'specific' impacts are all but factors in a whole series of forces to which adjustment must be constantly made. The greater the frequency of the demand, the greater the energy requirement. With inadequate energy store, with increased demand, the reactivity impaired by an intercurrent effector, the equilibrium is disturbed and illness follows. The sicker the organism, the poorer and less efficient the autonomic response. Death, therefore, depends, on a equation involving the degree of injury and the magnitude and frequency of impacts." . . . "Disturbed atmosphere means disturbed 'weather', greater variability of heat and cold, of moisture and dryness, of the charge on the particles, of ultraviolet light, of wind, of pressure. It is the greater variability of the environment which brings about exhaustion and fatigue — and with it death. Braun[11]), in a thorough, statistically well founded study, has essentially corroborated Petersen's experimental and clinical experiences.

Danziger[12]), in an ingenious manner, has tried to anchor the physiological problem of dying in the second law of thermodynamics which, in establishing the fact of self-degradation of energy, became the basis of the principle of increase of entropy (Carnot-Clausius). Decrease of energy means increase in entropy. As there is something irreversible in all physico-chemical transformations, the entropy of a system will continuously increase. Danziger sets forth the problem: "what is the nature of the physiological clock which runs down to death, which is so poorly wound up at birth that mortality in the first month of life is comparable to mortality in the eleventh decade?" Danziger in looking out for a biological function which is similar in infancy and in old age but different at other ages, calls attention to the rate of oxygen consumption, or its equivalent, the rate of heat production per unit of surface area and per unit of time. Oxygen consumption is very low at birth and, after rising to a maximum at the the age of about eighteen months, falls rapidly to maturity and, thereafter, more slowly to the end of the life span. After relatively complicated theoretical considerations, Danziger comes to the conclusion that the rate of oxygen consumption is an essential factor in the prediction and as antecedent of

possible death, and that the low oxygen consumption in advancing age is apparently a physiological determinative factor of dying. From a practical view point, Danziger concludes: "the decline of oxygen consumption rates with advancing age has been regarded with complacency by the medical profession. This decline, which is so common as to be considered normal, is not for that reason necessarily efficient or desirable. Just as the rise of blood pressure with age is still quite common but no longer considered desirable, so the fall of oxygen consumption with age may eventually be shown to be a sign of failing vitality. It may indicate that the physiological clock is running down at a rate which is now considered normal but which future discoveries may show is faster than necessary."

It can readily be seen that the few attempts at penetrating the physiology and pathophysiology of dying are rather unsystematic and erratic. On the whole, however, some general trends may already be recognized. The first one is the observation of a definite change in metabolism which is demonstrated by the shift of pH to the acid side, by the decrease of oxygen consumption and by histochemical changes in cell colloids. The second one is distinguished by experimental and clinical experiences as to alterations in the autonomic adjustment to the external and internal environment as exhibited by the prevalence of parasympathetic reactions, by the inadequacy of the organism to cope with common environmental impacts to which before the dying rate adjustment can be made. The third is the observation of biophysical unbalance; for instance, specific abnormalities in electrical potentials as seen in both the electrocardiogram and the electroencephalogram, the inability of the organism to respond to a greater frequency of energy demand with an adequate energy store which finally results in increase in entropy.

Admittedly scientifically founded observations of the physiology and pathophysiology of dying are scanty; yet, some of those which had been published, prove that much more could be accomplished by systematic research. They also demonstrate that the discovery of consistent methods of resuscitation and of prolongation of life will depend essentially on profounder understanding of the physiology and pathophysiology of dying.

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Neurological Advances of Interest to The General Practitioner

By SAMUEL ROSNER, M.D.

(1) There are many tests and therepeutic measures that the general practitioner can carry out when he is faced with a neurological problem. The study of a neurological problem is not the insurmountable object that we are accustomed to believe it to be.

The most common case that comes to the physician's attention is the cerebro vascular accident. The diagnosis of these conditions is within the knowledge and experience of the family doctor. We can make some suggestions that will perhaps aid in the finer points of diagnosis.

The patient will be paralyzed in one limb, one side of his face, or most often in one side of his body. If there is a history of hypertension sudden paralysis, and loss of consciousness then the patient has had a frank cerebral haemorrhage.

If there is sudden paralysis, normal or low blood pressure, and no loss of consciousness then the patient most probably had a cerebro vascular thrombosis.

If the preceding facts are found, but the patient is hypertensive, then cerebro-vascular spasm is the most likely cause.

The prognosis, except with massive haemorrhage, is good if the patient recovers consciousness within twenty-four hours.

Spinal tap should be carried out for diagnostic purposes. No Queckenstedt test should be tried. No more than 10 c.c. of fluid should be withdrawn. The fluid should be tested for cells, protein, and Wasserman reaction.

The only treatment that is new in the handling of these problems is the advent of Stellate Ganglion block with novocain, or novocain and alcohol. The purpose in this maneuver is to cause a better blood supply to the injured area of brain. This will cause absorption of oedema and injured brain much more quickly, so that return of function will be speeded up.

The general practitioner is not expected to do stellate ganglion blocks but he can carry out treatment that I have found to be as effective as stellate ganglion block. If a 1/10% solution of procaine in 500 c.c. of normal saline is given intravenously and run in, in twenty-five minutes or less, there will take place a cerebro-vascular dilatation that is at least equivalent to stellate ganglion novocain block. The doctor can give this procaine solution at home. It should be given daily for ten days. The only untoward effect is occasional dizziness which passes off in about twenty minutes. This can be relieved by coffee.

Subarachnoid Haemorrhage is diagnoses by consideration of the following points. The patient may, or may not be unconscious. If he is conscious he will complain of the onset of severe headache. He will usually show no paralysis but will show neck rigidity. Spinal tap will show the fluid to be contaminated with blood. Headache will be relieved after spinal tap. Lumbar puncture should be carried out every twelve hours until the cerebro-spinal fluid is clear of blood. This is my method of treatment and I have found it to be efficient. However, many pe-

ple believe that this is too radical an innovation.

It is my firm belief that the patient will become more comfortable and will recover sooner than with more conservative treatment. Penicillin should be given prophylacticly. Three hundred thousand units I.M., twice daily should be ample. The patient with subarachnoid haemorrhage may complain of severe low back pain radiating down both legs. This is due to blood in the Caudal sac and will be relieved when a few lumbar punctures remove this irritating material.

Infections of the nervous system are being treated more successfully, with the modern anti-biotics, than previously. The status of diagnosis and treatment is such that the family doctor can institute empirical treatment until the opportunity for consultation with a neurologist can be obtained. In areas where there is difficulty in obtaining expert opinion, efficient attack on the illness can be carried out nevertheless. If the clinical picture of a meningitis is present, there should be no hesitation in carrying out spinal tap. Lumbar puncture in the case of meningitis should be done for diagnostic reasons. I do not believe that it is necessary to instill anti-biotics into the subarachnoid space. Efficient treatment can be carried out by mouth, by Sulfadiazine with Bicarbonate tab. by mouth—two grams first dose and then one gram every four hours should be efficient treatment for pyogenic meningitis due to staphylococcus and pyogenic organisms, other than meningococcus. However, no differentiation need be made between meningoccus meningitis or the so called pyogenic organisms as far as treatment is concerned. Penicillin 300,000 U.I.M. three times daily can be combined with the sulfadiazine therapy.

(2) Chloromycetin has been shown to be of great value in influenzal meningitis and has been demonstrated in the spinal fluid within three hours.

In children who will not swallow, medication can be given by gavage for thirty-six to forty-eight hours. In children, 60 mgm per Kgm of body weight can be given every twenty-four hours. If there is vomiting, the patient can be given 75 mgm per Kgm of body weight. Chloromycetin can be combined with aureomycin or sulfadiazine or any other antibiotic that may be useful to combat the particular organism. After forty-eight hours, the child will usually take the medication by mouth if combined with jelly or milk.

Medication should be continued until temperature is normal for forty-eight hours.

In adults ½ gram every six hours should be adequate.

Syphilis of the nervous system is efficiently treated by penicillin. Whether it be in the pregnant mother, or in the male, penicillin in large doses is adequate therapy. An intramuscular injection of one million units in aqueous procaine solution twice daily for five days should be adequate treatment. The serology very often remains positive despite the control of the disease.

Tuberculous meningitis should not be treated at home. Streptomycin is the basis for therepeutics of all tuberculous infections.

Trauma to the nervous system:—The diagnosis and treatment of concussion, are well within the ken of the general practitioner. The patient gives a history of accident with loss of consciousness. In severe cases the patient will be seen in

bed. He will complain of headache, dizziness and nervousness. There may, or may not be nausea and vomiting. Pupils are equal and react to light. No pathological reflexes are found. Sensory reactions are normal. The patient will show signs of extreme dizziness upon picking his head up from a stooping position and almost every case of severe concussion will show a fall in systolic blood pressure. This fall in blood pressure will persist as long as the headaches and dizziness persist.

Watch the pupils and pulse rate. If there is inequality of pupils and slowing of pulse rate below 65, it is best to call in a neurologist or neuro-surgeon.

It is best not to keep the concussed patient in bed for too long a period. As soon as he feels well enough, he should be allowed out of bed. Treatment for the headaches consists of—mild sedation, vitamin B_1 by mouth and intravenous by twenty-five mgms vit. B_1 by mouth —three times daily and 300 mgm intravenously three times weekly for five weeks. If headaches are severe and persistent, intravenous infusions of normal saline 500 c.c. with 15 c.c. of 95% Ethyl, alcohol and 300 mgm vit. B_1 given daily for ten days will alleviate the patient's discomfort and pain.

The patient, who has suffered a concussion and is still unconscious when seen by the general practitioner, should be put under the care of a neurologist or neurosurgeon.

Occasionally, the doctor will see a patient with a fractured skull. If there is bleeding from the ear, then the fracture has disrupted the petrous bone and is a fracture of the base of the skull involving the middle fassa. If the patient is conscious he can be treated by the family doctor.

Treatment consists of wiping out the ear with a sterile cotton stick every few hours, anti-biotics as for a meningitis, restriction of fluids to 2000 c.c. in twenty four hours, adequate purgation, and bed rest until the bleeding from the ear has completely been stopped for forty-eight hours.

The ear should be completely covered by sterile gauze and under no circumstances should there be an attempt to syringe the ear.

The patient with a skull fracture is not a serious problem, comparatively. Of course, that is, if there is no brain damage, or intra-cranial bleeding. The aforementioned conditions are the most frequently seen by the family doctor and are well within his scope of treatment.

There have recently been no great advances made in neurology, or neurological surgery, that would place the doctor in general practice in a position to treat more complicated neurological problems. The advent of anti-biotics has placed the treatment of infections of the nervous system into the lap of the family doctor. This I believe is a step in the right direction in this age of over-specialization.

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The Management of the Pregnant Patient With Rheumatic Heart Disease

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Introduction

The management of the pregnant cardiac patient has been a subject of increasing critical concern to both the obstetrician and internist alike. With more extensive clinical experience the pendulum has swung away from the over-cautious attitude of earlier investigators who categorically prohibited pregnancy in patients with rheumatic heart disease. The ominous prognosis with which such patients were uniformly tagged is no longer justified in the light of more recent experience.

It is our object here to condense the experience gathered throughout the past 12 years at the Prenatal Cardiac Clinic of Bellevue Hospital in the management of the pregnant woman with rheumatic heart disease. Essential to an understanding of the scope of the problem is a consideration of the circulatory changes occuring during normal pregnancy, the criteria employed in diagnosis and classification of the rheumatic cardiac, and the plan for management utilized throughout pregnancy and the postpartum period.

4% of all the patients seen in the antenatal clinic are referred to the cardiologist for evaluation and half this number are returned as non-cardiacs. 2% of all patients seen at the antenatal clinic at Bellevue Hospital are found to have heart disease; of these, 95% are classified as having rheumatic heart disease. Those accepted as manifesting organic heart disease are then followed jointly by the Obstetrical and Cardiac Services. It has been estimated that the mortality of pregnant patients with heart disease is still five times that of women with normal hearts. Douglas[1] in his annual report of the New York Lying-In-Hospital stated in 1949 that heart disease was the most frequent cause of maternal mortality. Fitzgerald et al have recently demonstrated statistically the unquestionable value of antenatal supervision of the pregnant cardiac in reducing significantly maternal mortality.[1] It has now been established that heart disease accounts for approximately 25% of all maternal deaths.

Diagnosis

As previously stated half of all the patients referred to the Prenatal Cardiac Clinic by the Obstetrical Service for cardiac evaluation are rejected as non-cardiacs. One of the principle reasons for the large number of non-cardiacs suspected of having heart disease is to be found in an understanding of the hemodynamic adaptive mechanisms incident to pregnancy. The gestational state not only increases the cardiac load but may produce signs and symptoms suggestive of heart disease and even occasionally congestive heart failure.[3] The circulatory changes in-

cident to normal pregnancy may be summarized as follows:

1. Beginning at about the 12th week of pregnancy there is a progressive rise in cardiac output attaining a maximum volume at about the 36th week. Usually this increase exceeds the control minute volume by as much as 50%. From the 36th week on there is a gradual decline in the cardiac output with a return to normal values within several weeks postpartum.
2. An increase in circulating blood volume parallels the cardiac output. By the 36th week of pregnancy a maximum volume of 50% above the prepregnant state is attained. Again there is a gradual return to normal values.
3. As gestation progresses the circulation time diminishes; that is, the circulation rate is accelerated.
4. The heart rate manifests a gradual rise up until the time of parturition.

Other cardiovascular alterations occurring during normal pregnancy may be mistaken for signs of heart disease. Among the more common changes observed are:

1. Peripheral edema which is usually the result of pressure of the gravid uterus upon the pelvic veins.
2. Dyspnea, orthopnea and even occasional bouts of paroxysmal nocturnal dyspnea.
3. In 50 to 75% of all cases a functional murmur is audible, invarariably systolic in time.
4. An apparent cardiac enlargement due to an elevation of the diaphragm with rotation and transverse displacement of the heart.
5. As a consequence of the lordotic posture assumed by the patient, the pulmonic conus may become accenturated.[4] The cardiac silhouette may resemble the classic configuration of mitral valvular disease. A retrodisplacement of the barium filled esophagus suggesting an enlarged left auricle may occasionally be seen.[5]

It is therefore understandable that a pregnant woman with a normal heart may often be suspected of having heart disease. Not infrequently repeated examinations may be required before a definite diagnosis can be established. Dyspnea, orthopnea, tachycardia, peripheral edema and palpitation may all be observed during pregnancy in women without heart disease, or in those with heart disease but without failure. The dependable signs of congestive failure are persistant basal rales, an enlarged tender liver and genuine paroxysmal dyspnea found in addition to the symptoms previously discussed. In those instances where the advent of congestive failure in a patient with organic heart disease remains difficult to decide, a therapeutic trial with digitalis becomes indicated.

Every pregnant patient with a history of rheumatic fever, or an equivalent, is routinely referred to the Prenatal Cardiac Clinic for evaluation. Diagnosis is then based on careful physical examination augmented by the indicated roentgenologic and laboratory studies. Once a diagnosis of rheumatic heart disease has been established the patient is classified according to her functional capacity as outlined by the Criteria Committee of the New York Heart Association.[6] It has become a rule of thumb that those

patients who fall into classes I and II are considered favorable risks while those in classes III and IV are regarded as poor risks. It must be remembered however that not all patients can as readily be classified in the clinic as they are in the published criteria. Furthermore, the functional capacity of the patient may change considerably and rapidly at any time during the course of pregnancy.

In the Prenatal Cardiac Clinic at Bellevue Hospital we have sought to evaluate the pregnant rheumatic cardiac by employing a clinical principle based on a knowledge of the disease. It consists essentially in determing the position of the patient in relation to the natural history or evolution of her disease. Basically rheumatic heart disease may be considered as progressing through four separate phases:

1. The initial infection, often manifest by carditis, polyarthritis, chorea or muscle and joint pains.

2. Repeated exacerbations or recrudescenses which like the primary episode may follow in the wake of a hemolytic streptococcal infection.

3. A quiescent period beginning at puberty or adolescence and extending to the 4th or 5th decade. Throughout this period there usually are no overt recurrences of the disease or decreasing functional capacity.

4. Progressive diminution in cardiac reserve leading to congestive heart failure and subsequent death of the patient. When auricular fibrillation supervenes it is usually in this 4th phase and is essentially a reflection of the protracted duration of the disease.

The rheumatic cardiac that becomes pregnant is usually in phase 3 of the disease, when the carditis is presumably inactive and a diminution in functional capacity not yet evident. This explains why the great majority of rheumatic patients do well under intelligent obstetrical care. Cohen and Thomson[3] reporting on a survey of 300 pregant rheumatic cardiacs failed to observe a single clear-cut instance of rheumatic fever. 15% of all rheumatic cardiacs observed in our clinic develop congestive heart failure.

Management of the Pregnant Rheumatic Cardiac

A diagnosis having been established and the patient classified clinically, a decision concerning the pregnancy and its management must be made. Those considered good risks rarely present a problem regardless of when they are first seen. However, instances have been observed where a well compensated patient with a markedly stenotic mitral valve, even with a normal sized heart, may suddenly develop overwhelming pulmonary edema and rapidly succumb.[7] But the vast majority of patients in this favorable prognostic group do as well as the non-cardiacs providing the following conditions are adhered to:

1. Thorough physical examination at monthly intervals throughout the first 7 months of pregnancy; twice a month during the next 2 months; and weekly during the 10th lunar month. Careful attention is paid to the signs and symptoms heralding incipient failure; these are increasing breathlessness, cough, nocturnal dyspnea, rapid gain in weight, rales audible at the lung bases, an enlarged liver, tachycardia or alteration in cardiac rhythm.

2. The patient is warned to guard against respiratory infection and is urged to go to bed in the event any infection occurs. Antibiotics are administered promptly.

3. The patient is cautioned concerning any undue physical effort, particularly toward the 3rd trimester as the circulatory burden becomes pronounced.

4. Excessive weight gain must be prevented by employing a judicious diet and if necessary the restriction of salt. Here close liaison with the Obstetrical Service is essential. No patient should be permitted to gain more than 25 pounds in weight throughout the pregnancy.

5. It is generally agreed that the second stage of labor be shortened with delivery by low forceps. Once labor is established prophylactic penicillin therapy is indicated to minimize the possibility of subacute bacterial endocarditis. The anesthesia of choice is inhalation ether. Cyclopropane has been found to predispose to cardiac arrhythmias. Pudendal block is being recommended in an increasing number of cases.

A poor risk in our experience is a patient who has either suffered an episode of congestive heart failure during a previous pregnancy or manifests advanced rheumatic heart disease with frank evidence of failure or breathlessness on less than ordinary effort. Such patients are managed in accordance with the following outline:

1. If the patient seeks advice before pregnancy, she is urged not to become pregnant.

2. In the event that the pregnancy has not advanced beyond the first trimestera therapeutic abortion is recommended to be followed by tubal ligation.

3. Once a pregnancy has advanced beyond the first trimester it cannot be interrupted or prematurely terminated. Measures are immediately instituted to forestall the advent of congestive heart failure. Prolonged bed rest is insisted upon and usually the patient hospitalized for the final six weeks of pregnancy. Prophylactic digitalization is without value. The patient is permitted to enter into active labor and delivered by the vaginal route unless there are specific obstretrical indications for cesarean section. The mortality rate among patients delivered per vagina is definitely lower than those subjected to section.[2 8]

Complications of Rheumatic Heart Disease Congestive Heart Failure

This complication usually occurs toward the latter part of the second trimester or at any time during the third trimester. It is only rarely observed during labor or in the postpartum period. Where cardiac reserve is markedly diminished failure may supervene earlier, unrelated to the period of gestation. Again it must be emphasized that the earliest manifestation of failure may easily escape detection or readily be confused with the sign and symptoms incident to the pregnancy itself. If doubt arises concerning the occurrence of congestive failure it is expedient to err on the side of caution and digitilize the patient promptly. Measures designed to combat congestive failure are of prime importance and should receive precedence over any form of obstetrical intervention that may be contemplated. Adhering to such a sequence affords protection not only for the mother but the fetus as well. Bunim and Rubricius[9] reported that the mortality rate for infants of mothers in failure was 30%, while in the compensated group it fell to 9% as compared with the 7% in normal hearts.

The rapidly acting glycosides like digoxin, oubain and lanatoside C are commonly reserved for acute cardiac emergencies such a pulmonary

edema. They are of greater usefulness when congestive failure occurs in a patient close to term. We have learned to employ these rapidly acting glycosides in all patients admitted to the hospital in failure during the final weeks of pregnancy so that we may be more certain of obtaining a therapeutic response before labor begins. One and one-half milligrams of digoxin is administered intravenously as the initial dose and this is followed by 0.5 mgm every 6 hours until digitalization has been achieved. Oxygen, phlebotomy, mercurial diuretics and adequate sedation are judiciously employed as adjuvant measures. However, in the great majority of cases slower digitalization by the multiple dose method using whole leaf digitalis orally suffices. Ammonium chloride and mercurial diuretics are, of course, given whenever indicated.

The subsequent management of the patient, once failure has been controlled, will depend in large measure upon the particular stage of pregnancy. If failure supervenes during the first trimester the pregnancy should be interrupted. In the event that gestation has progressed beyond the first trimester the patient is permitted to continue to term, but is kept in bed for the remainder of the pregnancy and maintained on a salt-free diet. Parturition is by the vaginal route whenever possible and post-partum sterilization recommended.

The largest number of deaths due to congestive heart failure in any 24 hour period occurs in the first 24 hours following pregnancy. Analysis of these fatal cases by Hoffman and Jeffers[10] reveals that in every instance the patient went into active labor inadequately treated for congestive heart failure. While acute decompensation is uncommon with the onset of labor, heart failure already present may become markedly intensified. The conclusion is therefore inescapable that if a postpartum catastrophe is to be averted, failure must be thoroughly controlled before labor begins.

It is inadvisable to insist on early ambulation of the cardiac patient, particularly if failure has occurred. A minimum period of ten days in bed during the puerperium is indicated. Needless to say the patient is observed carefully throughout this time.

Subacute Bacterial Endocarditis

Fortunately the development of this complication during the course of pregnancy is a rare occurrence.[11 12] Intensive antibiotic therapy instituted early should yield the same gratifying results as are obtained today among non-pregnant patients. While it is unnecessary to continue treatment throughout the entire course of pregnancy, treatment should be reinstituted with the onset of labor and continued for at least two weeks into the puerperium. At the present time bacterial endocarditis is not considered an indication for either the interruption of pregnancy or postpartum sterilization. If it can be demonstrated that pregnancy favors the development of subacute bacterial endocarditis in patients who had been previously cured, sterilization should then be advised. As a result of modern therapy an increasing number of cured subacute bacterial endocarditis cases are making their appearance in the prenatal cardiac clinics.

The Prognosis of Pregnancy in Rheumatic Heart Disease

Since the principle cause of maternal mortality in pregnant cardiacs is congestive heart failure, it becomes imperative that all significant data which might help

prognosticate such a complication should be painstakingly sought and evaluated.[13] There is, unfortunately, no reliable objective test by which cardiac reserve can be measured clinically. Reliance must be placed on the signs and symptoms gathered from a careful history, physical and laboratory examinations. The significance of the findings as an aid to prognosis derives from the fact that it is possible to establish the position of the individual patient in the natural history of her rheumatic heart disease. Thus from a consideration of all the clinical evidence it is usually possible to determine whether the patient is approaching the 4th phase of her disease.

From all the available data the conclusion is justified that pregnancy per se has no immediate or delayed adverse effect on the course of rheumatic heart disease.[14] While pregnancy may be an important factor in precipitating cardiac decompensation, if the patient survives the failure she may be expected to revert in the postpartum period to her prepregnant functional status. Nor do multiple pregnancies shorten the life expectancy of patients with rheumatic heart disease.

Special consideration of the following factors will help to establish the relative position of the patient in relation to the stage of rheumatic heart disease.

1. *Age.* Regardless of parity, the rheumatic cardiac is more prone to fail with increasing age. Approximately 25% of our patients above the age of 30 developed congestive heart failure during pregnancy, whereas failure occurred in only 10% of the patients below 30.
2. *Duration of Heart Disease.* The incidence of failure increased as the interval of time lengthened between the onset of the first rheumatic manifestations and the beginning of the pregnancy. Thus, of those who had had rheumatic fever for a period less than 10 years, 4% went into failure, whereas among those patients who had had the disease for longer than 15 years, more than 10% became decompensated. In those instances where there is no previous history of rheumatic fever to serve as a guide in determining the duration of the disease, the absolute age of the patient may be employed as a rough index.
3. *Enlarged Heart.* As the duration and severity of the disease increases the heart undergoes progressive enlargement. The risk of failure is naturally greater among pregnant women whose hearts are markedly enlarged. Cardiac mensuration of the teleroentgenogram can readily yield misleading results during pregnancy unless the enlargement is unequivocal. It has been our experience that supplementary fluroscopic examination may prove helpful. Following a deep inspiration the cardiac shadow, which may appear enlarged at first, is often reduced to normal size. In the series of Bunim and Rubricius previously referred to,[9] the patients that become decompensated all manifested an increase of 10% or more above the normal maximum transverse diameter of the heart, computed from the table of Ungerleider and Clark.[15] It must be pointed out, however, in passing, that these authors have expressly stated that their tables can not be used satisfactorily to esti-

mate heart size in pregnancy. In our Prenatal Cardiac Clinic a number of women manifesting a 20 to 30% cardiac enlargement did not experience failure during pregnancy. From these considerations it was concluded that while patients with minimal cardiac enlargement are better risks, those evidencing a moderate enlargement are not necessarily bad risks.

4. *Functional Class* and *Previous Failure*. Without doubt the most reliable single index of the prognosis in pregnancy is the functional capacity of the heart to do work. Not only is it difficult to always establish this with precision but also it may vary markedly from one month to another. It is therefore not an infallible guide when considered alone. It may be anticipated, however, that a patient who has been in failure during a previous pregnancy will almost certainly decompensate unless the original failure was precipitated by circumstances not likely to recur, such as active rheumatic carditis.[16]

Summary

The hemodynamic alterations which take place during normal pregnancy may simulate the signs and symptoms of heart disease or even congestive heart failure. These changes impose an additional load on the circulation with stress increasing as pregnancy advances.

Heart failure is the most common cause of death in pregnant rheumatic cardiacs. The principles of prognosis outlined will enable the physician to anticipate failure, while frequent careful examinations will enable him to detect early signs of decompensation.

Prognosis in patients with rheumatic heart disease is facilitated by establishing the relative position which the patient occupies in the natural course of her heart disease. In utilizing this guiding principle it will be found that (1) a history of previous failure, (2) diminished cardiac reserve, (3) presence of auricular fibrillation, (4) long standing disease and (5) an enlarged heart, in the order listed, are useful in determining that the patient has unfortunately reached an advanced stage of her disease and therefore constitutes a poor risk.

The dependable signs of congestive heart failure are basal rales, an enlarged tender liver, true paroxysmal dyspnea and a significant diminution in vital capacity. Careful supervision throughout the antenatal period should enable one to detect this complication early. Prompt and intensive treatment of congestive failure will effectively reduce this greatest danger confronting a patient with heart disease.

A history of heart failure during a previous pregnancy or marked reduction in the functional capacity of the heart are indications for interrupting pregnancy during the first trimester. Obviously they should be regarded as contraindications to anticpated pregnancies.

Heart disease per se or even congestive heart failure should not be considered an indication for cesarean section in patients who can be delivered per vagina without difficulty.

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Factors Influencing the Reliability of a Pregnancy Test

Based Upon the Detection of Histidine in Urine

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The amino acid, histidine, appears in the urine of pregnant women and its detection may be utilized as a test for pregnancy.[1] Several investigators[2] have demonstrated, however, that histidine is frequently present in the urine of non-pregnant individuals. Neuweiler and Grim[3] state that the amino acid can be detected in the urine of about 15% of non-pregnant women.

Normally there is but a small quantity of free amino acids excreted in the urine. The quantity increases in conditions of extensive tissue autolysis or in diseases which result in extensively impaired hepatic function.

Page[4] has demonstrated that pregnancy histidinuria is probably due to an inhibition or interference with the renal tubular reabsorption mechanism for histidine. It is apparent that the renal threshold is not the same for all individuals and therefore certain controls must be established if a histidine pregnancy test is to be reliable. Factors which should be considered and which may be controlled, are as follows:-

(1) Diet. The excretion of histidine in the urine is significantly greater after a protein meal, as might be be expected. It appears to reach its peak sometime before the urinary nitrogen. Therefore, a minimum of four hours should elapse between the ingestion of protein and the collection of the specimen for the test. A series of tests run on urine specimens from twelve non-pregnant women demonstrated that histidine could not be detected in those specimens collected four hours or more after the ingestion of protein or oral histidine. In each instance the specimens collected before the four hour elapsed period contained detectable amounts of the amino acid.

(2) Menstrual Cycle. There is an increased amount of histidine excreted in the urine during menstruation and, in most instances, for forty-eight hours before the onset of the flow. The rate and time of increase is not the same in each individual. Following are results of tests run on specimens from twelve non-pregnant individuals: —

12 women—Positive tests throughout period of flow

10 women—Positive tests 24 hours before onset

7 women—Positive tests 48 hours before onset

The test specimen should, therefore, be collected sometime during the middle of the cycle or from one to two weeks following the first missed period. Variable results were obtained in tests made on specimens collected within a few days before or after the normal time of menstruation.

(3) Abortion. Detectable amounts of histidine are found in the urine from two to six days following abortion. The histidine excretion level then returns to normal.

(4) Specific Gravity. Urine specimens of high specific gravity collected from non-pregnant women often contain detectable amounts of histidine. By diluting these specimens with water, a histidine concentration can be established which cannot be detected by the means employed.

It is the practice of the authors to dilute all specimens of urine to the same specific gravity before testing a portion for histidine. The specific gravity of 1.008 has been chosen for alkaline specimens and 1.005 for acidic urines. The presence of 0.0125% histidine is then regarded as a positive test and pregnancy is indicated.

There are, perhaps, other factors which influence the amount of histidine excreted in the urine of non-pregnant women, but those enumerated above are most important and can be controlled. To diagnose pregnancy by testing the urine for histidine; implies a determination of an increase in the amount of amino acid excreted, and not its detection alone.

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SIDE-GLANCES at HISTORY OF MEDICINE

CEREBELLUM

The modern physiology of the cerebellum began with L. Rolando (Saggio sopo la vera struttura del cervello dell'uomo e degl' animali e' sopra le funzioni del sistema nervoso; Sassari, Stamperia Priveligiata, 1809). A second paper which also included pathological cerebellar syndromes was published by P. Flourens (Recherches expérimentales sur les propriétés et les fonctions du système nerveux dans les animaux vertebrées. Paris. Crevot, 1824). The triad of the cerebellar syndrome: asthenia, atonia, ataxia, was introduced by L. Luciani (Il Cervelleto; Nuovi di fisiologie normale e patologica. Fiorence. Le Monnier. 1891).

The Role of Dental Pathology in Clinical Medicine

By LEROY M. S. MINER, M.D., D.M.D.

Dental pathology is related to the problems of clinical medicine in two definite and distinct ways. First, dental pathology is frequently the result of systemic disease. Second, dental pathology not uncommonly is the source of disease elsewhere in the body.

In considering the first phase of this problem it is important to realize that the mucus membranes of the mouth are extremely sensitive to changes in the equilibrium of the various systems such as the circulatory system or the digestive system and changes in these mucus membranes frequently take place early and the health of the oral tissues may be seriously impaired by disturbances in the various body functions.

So promptly does the mouth react to these disturbances that the mouth may be regarded as the barometer of body health. Even normal processes may produce changes in the mouth. During the menstrual period gums may become congested, teeth become sensitive and occasionally they become painful. In boys and girls about the age of puberty gingivitis and bleeding gums have been observed. To this condition the name hormonal gingivitis has been given. During the menopause obscure pain and burning sensation may appear in the gingivae especially in the upper incisor region and also in the tongue.

During pregnancy gingivitis may develop to the point of developing what is called pregnancy gum tumor. Ziskin, Blackbury and Stout observed the gums and gingivae of a group of four hundred and sixteen pregnant women and found in thirty-eight per-cent of them one of the four recognized forms of "pregnancy gingivitis," bleeding gums, raspberry red gums, hypertrophic gingivitis of pregnancy and pregnancy tumor. These symptoms are disturbing and frequently alarming to the patient. Reassurance by the physician that these are common reactions which will disappear after pregnancy, will be a real service to the patient.

The most striking example of a blood disease that produced secondary changes in the mouth is splenic leukemia. Fortunately, this disease is not common, but the mouth symptoms are quite characteristic. The lesions chiefly involving the gums show marked hypertrophy with tendency to hemorrhage. In the more severe cases the teeth may be completely covered with exuberant tissue. In the early stages the increase in the gum tissue appears to be chiefly proliferation of the fibroblasts, the gums being harder and more fibrous. Such a case came to me for diagnosis recently. The only apparent symptoms were the hypertrophy of the gum and a general lassitude. The gums were being treated by a dentist with instrumentation and mouthwashes and a physician had prescribed a tonic. There was no local reason for the gum condition. The teeth were healthy and in good occlusion. Blood examination showed a typical picture of splenic leukemia. Physical examination revealed a definitely enlarged

spleen. These mouth lesions may be entirely misdiagnosed, for they may appear before the general symptoms become especially prominent.

In the simple or secondary anemias, mouth symptoms may develop. It is my observation that in the simple anemias of young people of high-school age the teeth are likely to be in poor condition with great susceptibility to dental caries. Who shall say whether the poor condition of the teeth caused the anemia or the anemia predisposed the teeth to dental caries? I can conceive that it is possible for it to work either way, but the evidence in favor of the latter is strongly suggestive. Simple stomatitis is frequently observed in secondary anemia. Congestion of the gums, vague discomfort and an unpleasant taste in the morning are symptoms of which some patients complain who have this disease. The teeth are usually more sensitive and there is a disposition to pain.

An illustrative case is that of a young woman complaining of pain in the lower jaw which seemed out of proportion to the dental findings. In searching for a cause from a physical basis, anemia was one of the conditions suspected. Blood examination showed a true secondary anemia. In pernicious anemia the teeth and gums are likely to be extremely irritable and to require considerable attention to keep the patient comfortable. The lack of reaction in the gum tissue makes an inter-current condition in the mouth extremely difficult to handle.

Changes in the pituitary causing giantism of the bones of the face, particularly the upper and lower jaws are well recognized. With changes in the thyroid glands deposits of tartar on the teeth are common symptoms, these deposits being followed by retraction of the gums with loosening of the teeth which are frequently lost.

Adrenal failure produces pigmentation in the mouth. Exhaustion of these glands from any cause produces a lassitude and other symptoms quite similar to toxic absorption. It is quite conceivable that in a proportion of cases of this type where the teeth have been held responsible for the trouble the real etiological factor is the adrenal gland.

Bright's disease, to use a general term, and diabetes cause definite symptoms in the mouth. In diabetes even with no teeth in the mouth subjective symptoms, particulary smarting and burning, are common. Many times these symptoms are put down as hysteria, or imagination or what not, presumably because nothing is found in the mouth to account for the trouble. A good rule to follow in these cases where a patient complains of smarting or burning or other forms of paresthesia and no local cause can be found, is to make an examination of the urine together with a complete physical examination. Even where a probable cause is found in the mouth examination of the blood and urine and other laboratory tests should be made.

Certain skin diseases produce lesions in the mouth. Lichen planus in particular produces a lesion which is quite characteristic and which is resistant to all local treatment.

Disturbances of nutrition is a vague phrase, but in its broadest sense it can be used to include all conditions resulting in an improper functioning of that complex process that changes food into energy and new tissue. With this conception of the term in mind some of the mouth

conditions arising from this cause may be surveyed.

The influence of faulty nutrition upon the dental apparatus probably begins at a very early age, even in utero. During infancy improper feeding or disease that interferes with proper nutrition will in turn interfere with normal development of the teeth and jaws. The pitted permanent incisors and the decalcified first molars which are developed during the first two years have been traced to one of these causes, but our knowledge is inexact regarding the actual mechanism. Of the definite diseases which give rise to mouth symptoms, Barlow's disease, or infantile scurvy, is the most striking. In this condition the oral mucous membrane is much congested, softened and reddish purple in color, sometimes almost black. Hemorrhage is frequent. In severe cases the teeth loosen and fall out. In a welldevelped typical case the diagnosis should not be difficult, for the other symptoms, particularly tenderness of the long bones, are definite, but in the milder cases retrograde changes in the oral mucous membrane may be the chief symptom. For this reason the dentist may be consulted first. Frequently these cases are mistaken for a mild acute stomatitis or for disturbances due to dentition. The real condition is entirely overlooked. Adults show changes in the tissues of the mouth due to faulty metabolism. In general, I feel it can be said that when there is an overload in the circulation due to faulty elimination the soft tissues of the mouth become easily congested (particularly the gingival tissue) and become suitable soil for infection.

In disturbances of the gastro-intestinal tract itself, a stomatitis is occasionally seen which is stubborn in yielding to local treatment, but which clears up under treatment of the general condition.

Recurrent multiple canker of a severe type is another oral condition observed in patients with hyperacid stomach or in a debilitated condition. Nursing mothers are frequent prey to this simple but exceedingly uncomfortable condition We know little of the etiology of this lesion. While it is a condition of no great importance, the recurrent type is exceedingly distressing and is worthy of more attention. Some of the low-grade inflammatory conditions of the oral mucous membrane coincident with a peridontoclasia may be secondary symptoms of a disordered gastro-intestinal tract or a faulty diet. Patients with these conditions are sometimes entirely relieved by clearing up of an intestinal stasis.

Dental infection has been accused of causing almost every disease flesh is heir to, and as a result many, many teeth have been sacrificed needlessly. It is common observation that certain people do suffer serious effects from dental infection and are relieved by its removal. It is equally true that infected teeth may be removed without bringing any systemic relief. This is particularly common experience especially in cases of arthritis. There is no evidence that suggests that every case of dental infection must of necessity cause some secondary disturbance. Dental infection apparently in some cases appears to cause no systemic symptoms. But under what conditions dental infection does cause secondary symptoms and under what conditions it does not we have no exact knowledge.

Dental infection as a cause of arthritis, the disease most frequently associated with dental infection,

has been reported as low as 5 percent.

This does not require us to abandon the theory of dental focal infection nor to discontinue efforts directed toward cleaning up unhealthy mouths. But it should distinctly lead us to be most conservative in our statements to patients regarding results. Yet, it is nothing less than a tragedy for those unfortunates who have had their teeth removed and have experienced no relief, resulting many times in a serious impairment of their masticating efficiency.

Today the most serious problem is that of subactue bacterial endocarditis and the role dental infection may play in that disease.

According to Sturgis[2] "although its onset is often insidious and no apparent cause for it can be determined, a significant number of cases have been studied in which there was a history of dental extraction or treatment of gingiva which involved considerable trauma. Blood cultures on normal individuals so treated have actually revealed streptococci to be at least transiently present in the blood stream. For this reason it is now almost standard practice to advise cardiac patients requiring expensive dental treatment that they should be given prophylactic medication prior to such treatment."

One of the problems of modern medicine has developed from advances in life expectancy and an increase in the proportion of older people in the population. This in turn has brought about a rise in interest in medical care for the elderly (geriatrics) and in the study of the process of aging (gerontology).

Apparently 50 percent of the population are losing one half of their natural dentition before they reach the age of fifty years, and an appalling number of persons beyond the age of 60 years have lost all of their natural teeth. Impairment of mastication has serious implications with regard to food habits, eating habits and nutrition of people 50 years of age and beyond. There is abundant clinical evidence that shows that in the elderly malnutrition may often be associated with impairment of mastication.

Brown[3] in discussing digestive problems in old age indicates the value of even a few teeth in older people and gives a much needed warning against the unwarranted extraction of their remaining teeth.

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NOTES on MEDICAL STATISTICS

PELLAGRA

Until recent years the mortality from pellagra varied according to various publications, but was generally above 66% of the cases. Due to the improved dietotherapy and the specific use of niacin (50 to 1000 mg. daily) within the last years the mortality rate has dropped to below 5% of cases. (Ernest Beerstecher, Jr. Chapter VI C in: The Biochemistry of Vitamins. By Roger J. Williams and others. The Reinhold Publ. Com., New York, 1950 p. 411).

ABOUT ALCOHOLICS

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The most democratic of illnesses, alcoholism is to be found as frequently in our most respected citizens as well as those in the humble walks of life. The business leader, the doctor and the mechanic arrive at the office via the same route—problem drinking. The alcoholic is not a dissipated bum. He is ill, many times gravely; an illness of the whole man including his soul.

The acceptance of the alcoholic as an essentially fine person, altho a sick one, shows him by example the full meaning of tolerance, which many humans, especially alcoholics, lack.

Professional help for the problem drinker is now available in many many states, thru clinics, committees, information centers and various national groups including Alcoholic Anonymous, many state supported centers, National, City and State Committees on the education on alcoholism and various religious groups.

Four Pre-Treatment Considerations for Patient and Family Are Important

I—Recognition

It is most important for the individual to recognize that he is an alcoholic. Besides his past experiences this is aided by having the individual take the following test:

1. Do you lose time from work due to drinking?
2. Is drinking making your home life unhappy?
3. Do you drink because you are shy with other people?
4. Is drinking affecting your reputation?
5. Have you ever felt remorse after drinking?
6. Have you gotten into financial difficulties as a result of drinking?
7. Do you turn to lower companions and an inferior environment when drinking?
8. Does your drinking make you careless of your family's welfare?
9. Has your ambition decreased since drinking?
10. Do you crave a drink at a definite time daily?
11. Do you want a drink the next morning?
12. Has your efficiency decreased since drinking?
13. Does drinking cause you to have difficulty in sleeping?
14. Is drinking jeopardizing your job or business?
15. Do you drink to escape from worries or trouble?
16. Do you drink alone?
17. Have you ever had a complete loss of memory as a result of drinking?
19. Do you drink to build up your self-confidence?
20. Have you ever been to a hospital or institution on account of drinking?

If you have answered YES to any one of the questions there is a definite warning that *you may be an alcoholic.*

If you have answered YES to any two, the chances are that *you are an alcoholic.*

If you have answered YES to three or more, *you are definitely an alcoholic*

☐Yes ☐No

II—Desire for Help

After the recognition that he is an alcoholic, it is essential for the patient to desire treatment on his own accord. As alcoholics in general have a tendency to hastily reject suggestions, persuasion and being pushed into treatment by those close to them, a good friend who has an alcoholic problem and who is under successful treatment is usually very helpful, provided the friend use tact rather than exhortation and nagging. This stage is psychologically very important and plays an important part in the treatment thru the re-directing of the patient's apparent stubborn and selfish drives (including the destructive and suicidal ones to constructive and creative ends.)

Thoughts to the contrary, an alcoholic is much more concerned with his drinking troubles than he appears to be, and some day after a depressing binge or bad hangover he will suddenly ask, plead or beg for help.

III—Where to Go for Help

At this period there are in this country many people and groups who have a great deal of information on where one can get in touch with a consultant on alcohol problems. For this information, go to your physician, clergyman, community chest groups or special alcoholic information centers, or mental hygiene clinics. After individual screening, the patient will be referred for psychotherapy, common-sense re-education courses, introduction to the Alcoholic Anonymous groups, religious groups, or possibly very short hospitalization.

IV—How Help Is Given

When dealing with an illness which contains a very large psychological factor, one cannot feel that specific drugs of any kind in any way can successfully be helpful. One such drug recently reported in the lay press and medical journals is not without danger, perhaps to the liver, and there are reports of its causing severe psychotic reactions and death. This drug is another attempted short cut, now in vogue, which is punitive in nature and the patient must desire to take the drug for a long period of time. There is no drug cure and nearly all groups who attempt to help the patient by means of drugs stress the fact that psychotherapy should always be recommended with the drug or drugs. The present day treatment consists of psychotherapy, which helps the patient learn and understand the specific origin, nature, unsatisfied needs, etc., behind his psychoneurosis or lack of emotional maturity. At the same time, physical adjuncts (if the patient is seen just after a bout), vitamins, controlled sedation, salt, sugar, food and insulin as and when indicated are used and the common-sense re-education is started, by using the following common-sense guides, which I presented to the medical profession about fifteen years ago:

1. He must be convinced that from his own experience that his reaction to alcohol is so abnormal that any indulgence for him constitutes a totally undesirable and impossible way of life.
2. He must be completely sincere in his desire to stop drinking once and for all.
3. He must recognize that the prob-

lem of drinking, for him, is not merely a problem of dissipation, but of a dangerous psychopathological reaction to a (for him) pernicious drug.

4. He must clearly understand that, once a man has passed from normal to abnormal drinking, he can never learn to control his drinking again.
5. He must come to understand that he has been trying to substitute achievement in life, and that his effort has been hopeless and absurd.
6. He must be convinced that giving up alcohol is his own personal problem, which primarily concerns himself alone.
7. He must be convinced that at all times, and under all conditions, alcohol produces for him not happiness, but unhappiness.
8. He must come to understand that the motive behind his drinking has been some form of self-expression, some desire to gratify an immature craving for attention, or to escape from unpleasant reality in order to get rid of disagreeable states of mind.
9. He must understand alcoholic ancestry is an excuse, not a reason for abnormal drinking.
10. He must realize that any reasonably intelligent and sincere person who is willing to make a sustained effort for a sufficient period of time, is capable of learning to live without alcohol.
11. He must fully resolve to tell the truth, the whole truth, without waiting to be asked, to the person who is trying to help him—and he must be equally honest with himself.
12. He must avoid the small glass of wine — i.e., the apparently harmless lapse—with more determination than the obvious slug of gin.
13. He must never be so foolish as to try to persuade himself that he can drink beer.
14. He must never be so childish as to offer temporary boredom as an excuse to himself for taking a drink.
15. He must disabuse his mind of any illusions about alcohol sharpening and polishing his wit and intellect.
16. He must learn to be tolerant of other peoples' mistakes, poor judgment and bad manners without becoming emotionally disturbed.
17. He must learn to disregard the dumb advice—and often dumber questions — of relatives and friends, without being disturbed emotionally.
18. He must recognize alcoholic daydreaming — about past good times, favorite bars, etc.—as a dangerous pastime to be inhibited by thinking about his reasons for not drinking.
19. He must learn to withstand success as well as failure, since pleasant emotions, as well as unpleasant ones, can serve as "good" excuses for taking a drink.
20. He must learn to be especially on guard during period of changes in his life that involve some emotion or nervous fatigue.
21. He must try to acquire a mature sense of values and learn to be controlled by his judgment instead of by his emotions.
22. He must realize that in giving up drinking he should not regard himself as a hero, or martyr, entitled to make unreasonable demands that his family give in to his every whim and wish.
23. He must beware of unconscious-

ly projecting himself into the role of some character in a movie, book, or play who handles liquor "like a gentleman," and of persuading himself that he can—and will—do likewise with equal impunity.

24. He must learn the importance of eating—since the best preventive for that tired nervous feeling which so often leads to taking a drink is food—and must carry chocolate bars or other candy with him, at all times, to eat between meals and whenever he becomes restless, jittery or tired.
25. He must learn how to relax naturally, both mentally and physically, without the use of the narcotic action of alcohol.
26. He must learn to avoid needless hurry and resultant fatigue by concentrating on what he is doing rather than on what he is going to do.
27. He must not neglect care of his physical health. which is important to his rehabilitation.
28. He must carefully follow a daily self-imposed schedule which, conscientiously carried out, aids in organizing a disciplined personality, developing new habits for old and bringing out a new rhythm of living.
29. He must never relax his determination or become careless, lazy, indifferent, or cocky in his efforts to eliminate his desire for alcohol.
30. He must not be discouraged by a feeling of discontent during the early stages of sobriety, but must turn this feeling into incentive to action which will legitimately satisfy his desire for self-expression.
31. He must not drop his guard at any time—but especially not during the early period of his reorganization, when premature feelings of victory and elation often occur.
32. He must understand that, besides abstinence, his real goal is a contented and efficient life.
33. He must appreciate the seriousness of his re-education, and regard it as the most important thing in his life.
34. He must realize that most people seeking psychologic help for abnormal drinking are above average in intellectual endowment, and that, while drinking means failure, abstinence is likely to mean success.
35. He must never feel that any of these commandments are in any way inconsequential, or secondary to business, play or whatnot; and he must conscientiously observe every one of them, day in and day out.

When I first began working with patients with alcohol problems, nearly everyone at the clinic called every alchoholic a psychopath, with the added qualifications of poor stuff, bad egg, and definitely unmodifiable human material. After some twenty odd years of intense interest and working with the alcoholic patient, I and many others have definitely disproved the fatalistic statement of my colleagues of the earlier years. Now, besides most of us recognizing the fact that alcoholics are sick people, we realize that psychopathic personalities do not make up the majority of the alcoholics of today.

One finds in many instances that alcoholism is evidence of varying degrees of psychoneurotic personalities, patterns and reactions with varying escape mechanisms involved; it (the alcoholic) in other patients may sometimes be representative of a major psychosis, feeble-mindedness, psychopathic person-

alities, epileptic equivalents, or very occasionally, evidence of an escape from incurable physical pain.

One must not overlook alcoholism as an evidence of psychosomatic conditions. I just recently took on a patient who in the late 1930's developed and showed evidence of the beginning of three illnesses: (1) hypertension, (2) duodenal ulcer, and (3) alcoholism, all three developing in a setting of marital disharmonies for some years before, which disharmonies ended in a divorce in 1940.

Sometimes the analyst (not too often) uncovers latent homosexuality —but others, including myself, feel that there is found more often latent hetero-sexuality which comes to be overt and is the evidence of lack of sexual maturity. The alcohol in these patients had been taken to either narcotize the drive or the conscience, i.e., to deaden the psychic pain or dull out the normal inhibitors.

A large number of alcoholics, however, present no marked psychopathology; rather they fall into a borderline group characterized chiefly by a "weak ego", and that, as with cancers, early recognition and proper treatment are of the utmost importance. One finds that these individuals lack, or have not adequately developed, one or more of the four essentials that are found in a strong and healthy ego which result in purposive and efficient conduct and living. (One must also remember that much of the content of the ego lies in the field of the unawareness.)

The four ego characteristics which this type of alcoholic lacks to a great extent, or does not possess, are:

(1) Independence (self government).
(2) Freedom (to think and act at a mature level)
(3) Power (to manage situations and take responsibilities).
(4) Prestige (assurance and feelings of adequacy).

Often, of course, various "reasons" for drinking excessively may be given: a nagging wife, an ununderstanding husband, an impossible boss, illness or injury. These "reasons" are, however, factors in, not causes of, the alcohol problem. Biographical and other evidences when supplied invariably show that the roots of drinking, a need to escape or to be narcotized and numbed to the pains of life, lie in early childhood personality reactions to the environmental climate, with subsequent faulty development of sentiments, attitudes and resulting behavior pattern in interpersonal relationship.

The following factors are important in the successful rehabilitation of patients with alcohol problems:

(1) Some desire for help by the patient.
(2) Careful selection of patient (Rule out psychotics and feebleminded, etc.)
(3) Interpersonal relationship of patient and therapist (Personality and attitude of therapist)
(4) Formal psychotherapy.
(5) Re-education (Common sense).
(6) Suggestive influences.
(7) Interviews with the mate or close relations with perhaps treatment of some of these also.
(8) Intangible but dynamic factors including the emotional climate surrounding the patient in all spheres of activity, plus full cooperation in the treatment approach by all intimately involved.
(9) More or less continuous follow-up.
(10) Physical adjuncts already mentioned.

Will-power alone has little to do

with complete healing of an individual. Indeed nothing could be further from the truth than the idea that the problem of alcoholism can be solved by an effort of the will. No one can will himself into love, faith, tolerance or humility. But he can and must have an overwhelming desire to be healed and to grow out of his morass of self. A return to religion is most helpful and early in their treatment most of my patients receive reading assignments in religion fields. This comes as quite a surprise because patients do not generally associate psychiatry with religion.

As I see it, the philosophy of religion is universal law. As a psychiatrist I have had the opportunity of observing the curative powers of these laws at work, as well as the tragedy brought about by disobeying them. Within the framework of these laws lies a way of life that we must have, if we live at all, and not merely exist as moral cripples and stretcher cases.

Prognosis in Mammary Cancer

By IAN MACDONALD, M.D.*

Cancer of the breast, second ranking cause of mortality from cancer in American women, continues its upward trend of incidence and mortality which first became evident early in this century. That this increase is only partially due to an increase in the aging fraction of the population is shown by age-adjusted statistics. At present the annual mortality from mammary cancer in U. S. verges on 19,000. There are, at any time, over 70,000 current cases. Cancer of the breast is of two types: fibrosarcoma and carcinoma. Fibrosarcomas arise, almost invariably, from pre-existing fibroadenomas. Fibrosarcomas form about 0.4% of all cancers of the breast. They occur most often after age 30. Barring the large and rapidly growing lesions, simple mastectomy is curative for patients with mammary fibrosarcoma. By 3 years following treatment, with no clinical evidence of local recurrence, and no roentgenological signs of pulmonary metastasis, permanent cure is virtually certain. Mammary carcinoma is one of the most variegated of growth patterns in human cancer, ranging from the fulminating, explosive inflammatory carcinoma to processes so dilatory that escape of the neoplasm beyond its site of origin may not have occurred after 10 years of local growth. Factors of importance in prognosis are: 1) The stage of the disease (Stage I.: Limited to the breast, with no or limited skin involvement; Stage II. a): Metastasis to axillary nodes, 2cm. or less in diameter; b) axillary nodes larger than 2 cm., adherent to each other or to skin. Skin involvement up to ulceration; Stage III. Distant metastases including supraclavicular nodes). 2) The degree of anaplasia; 3) Historical and objective evidence of rate of growth; 4) The development of the disease during pregnancy or lactation.

Survival rates for untreated car-

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cinoma of the breast, from the time of diagnosis, are as follows:

3 years, 40%; 5 years, 22%; 10 years, 5%.

Five year control rates after definite treatment, by stage (Stage I, radical mastectomy; Stage II. a) radical mastectomy; Stage II b) either radical mastectomy or palliative irradiation; Stage III, obviously incurable, x-ray radiation and palliative local surgical measures when indicated):

Stage I, 70%-80%; Stage II, 30%-40%, Stage III, 0%-4%.

Following the 5 year post-treatment period, deaths from cancer exceed deaths from other causes until the 10 year level is reached. Thereafter, deaths from natural causes equal, and eventually, exceed those from cancer.

NOTES on MEDICAL STATISTICS

CANCER MORBIDITY

In a current year, an estimated 279,164 individuals seek relief for carcinoma for the first time; 879,556 persons with a history of carcinoma are living in all categories from care to terminal stage, and 229,765 individuals are living who have survived treatment for 5 years or more. If to-day's population in U.S. were to remain static, more than 5,000,000 new cases of carcinoma would develop in the next 10 years (Rhoads, 1949). Of people with no symptoms, approximately 1½% have unsuspected carcinoma (Ochsner, 1950). In 2,479 persons examined in 4 cancer detection centers in 3 years, 5 cases of carcinoma were detected in persons without symptoms (Garland, 1950).

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The Influence of Ancestors on Longevity

By I. P. ANDERSON, Ph.D.
Research Division, Development Department, Armour & Co.

Longevity is the term applied to extreme old age terminating in death caused only by wearing out of the tissues. Those who do not reach old age do not live out the span of life nature intended them to have. Because of the many diseases and accidents of our environment only a relatively small per cent of our population reaches extreme old age. Were there no diseases or accidents and everyone reached a normal old age it would be found that the span of life varied considerably. This variability in the normal span of life from 75 to 105 years is due to hereditary influences.

Even if all people were hereditarily alike accidents and diseases would still take their toll at all ages of life just as they now do. However, medical science has markedly reduced the death rate from disease. The introduction of vaccination during the last century together with the excellent service rendered by our doctors in curing and preventing infant and children's diseases has increased the life span from 37 to 68 years. This accomplishment of almost doubling the life span since 1875, is little short of miraculous.

The important benefit to our population in this saving of life is almost like making two people live where only one lived before. The medical profession has been so successful in reducing the fatalities of pneumonia, typhoid fever, tuberculosis and diabetes that now it is concentrating attention on cancer and heart disease which formerly were classed as "old age" diseases. The success of this concentration of the attention of our doctors and research men on those diseases already holds promise of relief from the fatal grasp of these two primary scourges of old age. We owe a debt of gratitude to the medical men and their laboratory assistants for the vast strides medicine has made in the saving of life.

There is no denying the fact that no two people are exactly alike. Heredity, as it were, sees to it that each human is different from all others. Twins may resemble each other but not be exactly alike. Even "identical twins" derived from the same fertilized ovum always show a slight difference. We can understand this difference when we consider man's development from a small cell of protoplasm. The protoplasm is alive and its only instinct is to produce cells. These cells must be and are under the continual influence of hormones as they are being processed to build the skeleton, tendons, flesh, heart, lungs, liver, alimentary canal, with the organs placed in exact order around the canal. Some of the 206 bones of the skeleton develop alike as they grow on each side of the body. It is necessary for them to develop alike and they usually do, so perfectly it is not possible for the eye to detect a difference. Occasionally deformities occur when a cell or group of cells, which are set aside to grow a specific limb or organ, become misplaced or die during embryonic development. This failure of key cells often results in unusual deformities. For example I recall a teacher whose left arm terminated

at the elbow in a two-fingered hand. The other arm was full length but the hand had no thumb and only three fingers. The configuration of the body is a mysterious perfection in the fashioning of the features to resemble the ancestry.

Longevity is not governed by the visible body but by the invisible constitution. The word constitution is an abstract one and means that in the development of the growing cells some "power" is given to the cells of the body, perhaps by hormones, that enables the body to bear the usual ills of life because the constitution is strong. On the other hand, if the cells of the body did not get this "power" the constitution is weak and life is liable to succumb to the hardships of environment.

Each human must live with the constitution with which he is born. But those with weak constitutions having the inclination to pick up every contagious disease floating through the air, can do something to prevent it. They can, by vaccination, escape a number of diseases. They should stay away from sick people. They should take no risks of accidents of any character. They should submit to medical examination quite frequently. In short take care of LIFE, the most precious of all ancestral gifts.

Those who have strong constitutions handed on to them from their ancestry have by far a better chance for long life. Heredity alone is not able to insure longevity, it only makes old age possible and it makes it easier for the fortunate few to escape dangerous diseases. But unless the strength of the constitution reaches and tempers the judgment risks may be taken that end in disaster. The stronger the constitution the greater is the inclination to enter competitive sports like skiing, hockey, ice skating, running races, and fast driving. This results in exposing the individual to a greater likelihood of falling prey to accidents.

It must be remembered that when maturity is reached about 35 or 40 years of age, degeneration sets in. At first it is imperceptible, since it is a slowing of cell multiplication and naturally the cells have less vigor and so the tissues tend to lose elasticity and tenacity. This slight degeneration goes on, gradually increasing with advancing years, making itself apparent by slowing up the activities of the muscles. The teeth are usually the first to show this general body decay, the eyes are next, calling for glasses. The hair gradually becomes gray and eventually a hearing aid may be needed. Somewhere in the sixties shrinking and furrowing of the face takes place, somewhat in appearance like the ancestors when of the same age. Even with all these minor disabilities and infirmities one should be able to work until at least 70 years of age. Sixty-five is too young to lay off vigorous men. It is true the older men will be slow but their experience and knowledge counterbalances the deliberation. Today we have more people going toward 65 and old age than ever before. Can they enjoy their declining years unoccupied? Not if they carry a disease of any kind. But if free physically and mentally old age can be very satisfying as life draws to a close.

Longevity has two chief enemies —*cancer* and *heart failure*. A herculean effort is being made by the research laboratories and medical profession to find a remedy for cancer. More money is being spent in this research than has ever been

spent for knowledge of any other one disease. Much progress is being made and many mild cases when discovered early have been arrested or cured. Free examinations by the health department are being made to discover any cancers just starting. We do not know if cancer is governed by heredity. But if old age is reached without any affliction of cancer, it is unlikely that there will be danger from it in the very late years.

The medical reports in recent years indicate that there are more deaths from heart disease or heart failure than any other disease. But unlike cancer where environmental factors play an important role, we do know that heredity is definitely involved in that some families possess durable hearts, good through extreme old age, while other families produce children whose hearts fail anywhere from 45 to 65 years of age.

The valuable labor of the heart can best be appreciated by remembering that when the fertilized ovum as a small bit of live protoplasm starts to grow in the womb it sets aside cells to form a heart as its first organ and later cells for the formation of the head and brain. By the end of four weeks of gestation a little body, little fashioned like a heart or any other organ, has been formed and it at that time begins to beat before the growing embryo has produced any blood. But the absence of blood does not keep the heart still. It begins to beat to be ready when its miraculous parts and appendages are completed. So this precious organ starts working eight months before the baby is born and carries the infant through childhood and through youth and maturity with scarcely any attention.

As young men and women grow to maturity they should take care of their hearts by refusing any play or physical activity that overtires this valuable organ. It rarely tells one when it is fatigued.

When the ancestors have passed along a heart which has handed longevity to its owner, the precious organ should be kindly treated as long as it remains active. One may prolong age considerably by giving the heart as much rest as is given any other body muscle when a distress signal is first put forth.

NOTES on MEDICAL STATISTICS

MALIGNANT MELANOMA

Melanomas represent from 1 to 2% of all malignancies and constitute approximately 20% of all primary skin carcinomas. There is an estimated occurrence of 2 cases per 100,000 population and year (A. H. Wells. Minnesota Med. May 1950)--A survey of 862 cases with a follow-up of 595 for 5 years, showed an over-all cure rate of 9.7%. Radiation alone yielded no 5 year survivals. Surgical resection resulted in 38.4% three year and 17.7% five year salvage (G. T. Pack et al. California Med. 66:238, May, 1947)—Chemosurgical excision resulted in 35% five year cures (F. E. Mohs, J. Ins. Med. 1:16, Dec.-Jan.-Feb., 1949-1950)—20 patients treated chemosurgically; 7 survived for more than 5 years, 13 died from metastases, 4 from undetermined causes (F. E. Mohs. Arch. Dermat. & Syph. 62:269, Aug. 1950).

Sleep Treatment in Russia

The aim of sleep treatment is to eliminate the exhausted cerebral cortex, to improve cortico-subcortical coordination and calming organs and organ systems involved in the disease. Soviet workers try to induce sleep, lasting about 20 hours per day for three weeks or more. Particulars of the treatment are not known. Some physicians allegedly use chloral hydrate by clyster, in doses of 1.5 g. per day. Barbiturates (phenobarbital, 1.5 - 2 g.) are also used. Other Russian physicians employ conditioning procedures following Pavlov's example. One author (Tchernoroustski) points to rhythmic monotonous noises, to flickering blue light, or to application of heat. Good results have been claimed in peptic ulcers, neurodermatitis, visceral spasmodic conditions, neuralgias, ulcers of extremities, and causalgia. (Ch. Brisset and V. Gachkel. Presse med. 59:465, April 7, 1951.) Editorial note: this paper has been abstracted because very little has been learned about Soviet medicine in recent years; however, this report should be read with the necessary reservations, as the French authors, themselves obviously have only second hand knowledge.

Burns

Author gives 1 or 2 liters of blood during the first 12 hours in the case of an adult. The criterion of adequacy of therapy is maintenance of the urinary output at 25 cc. per hour or more. Also a modified Haldane solution is given by mouth in as large amounts as tolerated by the patient (3 Gm. NaCl and 1.5 Gm $NaCO_3$ per liter of distilled water) If after 12 hours the hemocrit reading is over 50 and if still signs of shock are present, transfusions should be continued together with alkaline-buffered solution by mouth. Patients who cannot take fluids orally, generally can do so after an infusion of 500 cc. of Ringer solution. The author recommends dressing of burns under light analgesia with large strips of Furacin-impregnated gauze and usual burn dressing rolls which can be removed by flushing with normal saline. When there is infection present, wet dressings with a solution of 1:4,000 zephiran and ¼% acetic acid in normal saline injected through Dakin tubes have been employed. Open air exposure treatment is recommended in cases in which the burns are essentially on the surface of the trunk or extremities either front, back or side and on the head or neck. Acutely burned patients are stripped and placed on sterile sheets. Involved extremities are kept elevated. Within two or three days thin crusts form over raw surfaces which remain untouched. If there are third degree burns, usually some liquefaction occurs at the periphery of the dry slough within 2 or 3 weeks; then the slough is exercised and the region is dressed with a single layer of gauze. For the first 5 days penicillin or terramycin is administered. During the phase of recovery, overburdening with fluid should be avoided. Tap water is given instead of alkaline fluids. If potassium deficiency appears because of the diuresis, the patient must be treated accordingly. To combat negative nitrogen balance, which is inevitable, a high caloric diet with 300-400 Gm. of protein in 24 hours should be given. One of frequent complications is the development of ulnar and peroneal palsies due to prolonged use of pressure dressings. (T. G. Blockner, Jr., Americ. Surgeon, 17:323 April 1951).

Erythroblastosis Fetalis

Severe cases have been treated with some success by replacment transfusions in the immediate neonatal period. The aim of this treatment is to replace the fetal blood with blood whose serum is void of Rh antibodies and whose cells will not react with Rh antibodies which might remain, thus terminating the disease producing anigen-antibody reaction. In addition, this therapy provides an adequate oxygen carrying mechanism to replace that destroyed by the disease. The continuous transfusion and coordinated withdrawal method leaves approximately 36.7% of the original 250cc. of infant's blood. The method of intermittent withdrawal of 50 cc. of infant's blood and injection of 50 cc. of Rh negative blood repeated 5 times removes about 75 percent of the original 250 cc. of infant's blood.

As to the etiology of erythroblastosis fetalis the author states that the Rh negative female who is pregnant with an Rh positive fetus may become sensitized by fetal agglutinogens which escape the placental barrier. The antibodies thus produced in the mother's circulation pass freely through the placental barrier and agglutinate the fetal red blood cells. The fetus may suffer from hemolytic anemia, icterus gravis or fetal hydrops, according to the severity of the reaction. The disease occurs only about once in forty deliveries where the mother is Rh negative and the father Rh positive. With the first or second pregnancy and in the absence of a history of previous blood transfusion (which may have produced antibodies in the mother's blood), it is relatively safe to do nothing more than to observe the patient. Rh antibody titers must be taken early in pregnancy and repeated frequently. Since fetal protection from maternal antibodies cannot successfully be provided, interruption of pregnancy should be considered when the antibody titers increase in degree and in rate of change. (R. G. Austin. Arizona Medicine, 5:38, May 1951).

Polyneuritis

Cases of polyneuritis, which are favorably influenced by treatment with vitamin B_1, show as principal impairment an abnormality of the pyruvate metabolism which is an intermediary in glucose break-down. In studying this metabolism in polyneuritic patients it was found that there are cases in which no abnormality of this metabolism exist, that there are, furthermore, cases which showed a significant impairment but in which the blood pyruvate level, after glucose administration, fell to normal after intramuscular injection of vitamin B_1 and, finally, cases with defective pyruvate metabolism which remained uninfluenced by vitamin B_1 treatment. The authors, therefore, suggest that the value of vitamin B_1 treatment following an intensive course and an indication of cases unlikely to benefit from such therapy may be detected faster by pyruvate metabolism tests than by clinical methods.

(C. L. Joiner, B. McArdle, R.H.S. Thompson, BRAIN, 73:432, Dec. 1950)

Glomus Tumor

Treatment by heat, cold or sympathectomy has been unsuccessful. The tumor is x-ray resistant. Simple surgical excision is the treatment of choice. An unusually large amount of procaine is needed for anesthesia. As the tumor is benign. it does not recur after removal. (M. Riveros and G. T. Pack. Annals of Surgery, 133:394, March 1951).

Antihistamines

The oral administration of histamine antagonists has shown to provide rapid and sometimes dramatic relief in a number of allergic conditions which are apparently accompanied by release of excessive histamine from the tissue. Diphenhydramine and tripelamine are useful symptomatic remedies in the treatment of hay fever, urticaria, atopic dermatitis, and some other types of dermatitis but are of limited usefulness against perennial vasomotor rhinitis and asthma (Feinberg. J.A.M.A. 132:702, 1946). In general, if at all, antihistaminics relieve mild cases of wheezing (Gay, Landau, Carliner, Davidson, Furstenberg, Herman, Nelson, Parsons and Winkenwerder. Bull. Johns Hopk. Hosp. 83:350, 1948). Antihistamines have been used successfully in the treatment of diseases which seem unrelated to histamine: radiation sickness (Volteroni. Minerva Med. 38, II, 455, 1947), experimental tuberculosis (Sarber. Am. Rev. Tuberc. 57:504, 1948; Duca and Scudi. Ann. Allergy. 7:318, 1949), human tuberculosis (Judd and Henderson. Ann. Allergy 7:306, 1949), relief of nausea and vomiting in pregnancy (Garliner, Radman, Gay. Science 110:215, 1949), prevention of motion sickness (Gay and Garliner. Bull. Johns Hopk. Hosp. 84:470, 1949). The most common observed side effects are drowsiness, fatigue, dizziness, nausea, nervousness, dryness of mouth. There is considerable variation in response and where a patient will respond unfavorably to one drug, another, which caused side effects in a second patient, may be tolerated without side effects. (Histamine Antogonists. By Frederick Leonard and Charles Huttrer. Chemical-Biological Coordination Center. National Research Council, Washington D.C. 1950. pp. 37-39). Editorial note: It is conspicuous that in this authoritative and meticulous study, the therapeutic relationship of antihistaminics and the common cold has not been mentioned.

Antibiotics

In infections of ear, nose, and throat penicillin is recommended; only when (rarely) gramnegative bacilli are the causative agents aureomycin or chloromycetin should be administered. In pneumonia, aureomycin is the drug of choice as it is effective both in pneumococcic and primary atypical pneumonia. In meningitis, the initial therapy consists of a combination of penicillin (intramuscularly and intrathecally) with either sulfadiazine or Gantrisin (orally or intravenously). If a culture has shown Hemophilus influenzae to be the causative agent, aureomycin or chloromycetin should be employed. For tuberculous meningitis a combination of streptomycin and para-aminosalicyilc acid is the treatment of choice. In infections of the urinary tract 300,000 units of procaine penicillin intramuscularly daily with 7½ grains of Sulfadiazine or Gantrisin, t.i.d. will as a rule control the infection. Streptomycin should be considered when the infection is resistant to other antibiotics. In peritonitis a combination of aureomycin and dihydrosptreptomycin has proved to be effective. Furuncles and carbuncles respond to penicillin, or if penicillin-resistance develops, to aureomycin or Terramycin. In osteomyelitis, penicillin again is the favored drug. In syphilis penicillin is still the drug of choice. Typhoid fever has well responded to chloromycetin. (D. R. Nichols. The Journal Lancet. 3:89, March 1951).

Silicosis

Author points to two new clinical signs of silicosis. 1) "Paracardial Pain." Refers to painful reaction in the mediastinum. It differs from pleurodynia, frequently seen in silicotic patients. It is a sharp pain localized either in the precordium or —more often—in the paracardiac region, right or left or below the heart. It is common among dyspneic patients and appears most frequently in coughing or rapid walking. It is one of the first symptoms of silicosis complicated by respiratory or cardiac insufficiency. It precedes edema, gallop rhythm and hepatomegaly. 2) "Knee Sign." Also appears in dyspneic silicotic patients with impairment of respiratory function. Patient suffocates, places his right knee to the ground and presses his chest forcibly against his left knee, thus obtaining relief of the shortness of breath. This symptom coincides with the first manifestation of right heart failure with anoxemia. It is accompanied by EK-graphic changes such as right axis deviation and changes in circulatory rate. These two symptoms "constitute a worsening of the clinical picture." (Marcel Maulin. Industrial Medicine and Surgery, 5:211, May 1951)

Rheumatism of Non-Articular Origin

25% of patients, consulting arthritis clinics, have rheumatism and not arthritis. The diagnosis is often difficult because the subjective symptoms: pain and tenderness in the area of joints and restriction of movements are characteristic of both arthritic and nonarthritic involvement. The most frequent impairment is fibrositis which may be either diffuse or localized; it is a disorder affecting mainly adolescent or middle aged adults. As fibrositis often develops in the connective tissue around a joint, the diagnosis may be problematic for some time; the regions of predilection are: fascia, tendons and aponeuroses of hands, thighs, back, and shoulders. Lumbago, fascitis, tenosynovitis and bursitis are types of fibrositis. The symptoms are accentuated after a long rest and, thus, in the early morning. Mild exercise seems to improve the subjective symptoms; the same holds true for dry warm weather. (R. H. Freyberg. Bull. New York Acad. Med. 27:245, 1951)

Hypertrophic Pyloric Stenosis in Adults

The primary pathologic change is hypertrophy as well as hyperplasia of the circular muscle of the pylorus; yet, there may be hypertrophy of all layers of the stomach. With increasing stenosis there may be varying degrees of gastric dilatation but obstruction is rarely complete. The symptoms are not characteristic; they reflect the degree of stenosis and associated secondary gastric changes. Vomiting of the retentive type is a frequent sign. Other signs and symptoms are nausea, abdominal pain, constipation, weakness and weight loss. It is hardly possible to make a definite preoperative diagnosis. The x-ray picture may show an elongated and rigid pyloric canal; yet this is not pathognomic. The clinical findings of a brief ulcer-like history with signs of pyloric obstruction may point to hypertrophic pyloric stenosis, but also to neoplasm or ulcer. Gastric analysis and stool examinations as well as gastroscopy do not contribute essentially to the diagnosis. The etiology is not clear. The adult form is usually associated with ulcerations and inflammation of the gastric mucosa; only a few

cases are known in which the stomach mucosa was not involved. In the differential diagnosis the following conditions have to be borne in mind: carcinoma of the stomach, carcinoma of the pancreas invading the stomach, pyloric ulcer with secondary stenosis, giant rugae, hypertrophic gastritis, annular pancreas, antral spasm, prolapse of gastric mucosa, syphilis of the stomach and benign gastric tumors. (H. Greenfield. Ann. Int. Med. 34:492, February 1951)

Cancer of Stomach

"Symptoms. 1) Digestive symptoms (indigestion) occurring the first time, fairly late in life and not yielding to ordinary medical therapy. Anorexia, nausea and vomiting are usually present as is gastric flatulence. 2) Ulcer patients who do not respond to adequate treatment. . . . 3) Ulcer symptoms appearing late in life. 4) Loss of weight usually occurs early but depends on the location of the lesion. 5) Secondary anemia of unexplained origin usually occurs early in the disease. . . . 6) The fatigue syndrome, lack of concentration and judgment. 7) Hemorrhage is much less common in carcinoma than in peptic ulcer, but small amounts are lost constantly. 8) A recently developed stomach consciousness, a vague feeling of discomfort or oppression after meals. . . 9) Change in bowel habits. Gastrogenic diarrhea. 10) Nocturnal pain is more constant in cancer than in most other abdominal lesions. —Diagnosis. 1) History with symptoms of weeks or months elicited in 70%. Long history in 30%. . . . "Virchow" node in left supraclavicular area. 2) Laboratory data. Hyperchlorgydria in 2% of cases. Normal acidity in 8%. Hypochlorhydria in 25%. Achlorhydria in 65%. Oppler-Boas Bacillus. Sarcinae. Lactic acid. Papiacalaou staining of gastric content for malignant cells. Stool for persistent blood. 3) X-ray examinations. Most important single factor. Negative findings, however, do not prove the absence of malignant growths. . . . 4) Gastroscopic examinations when . . . available. —Differential diagnosis. 1) Peptic ulcers. Have a longer history. Found in younger patients and are more inclined to bleed. Gastric acidity higher. Pain relieved by food instead of being increased. Loss of weight less. 2) Gastritis, differentiated by x-ray and gastroscopic examination. 3) Syphilis. Age of onset earlier. 4) Tuberculosis. Usually tuberculosis elsewhere. 5) Benign tumors. Symptoms less and age lower. 6) Cardiospasm. Tortupus esophagus on x-ray. A history of difficulty in swallowing liquids, rather than more solid food. (A. M. Vaughn. Mississippi Valley Med. J. 3:65, May 1951).

Neuroma of Appendix

Dull pain of chronic character in the right lower quadrant with tenderness at the McBurney point may be due to a neuroma of the appendix. The pain may become very severe in attacks and muscular spasm also may occur. Nausea and vomiting may complicate the picture. The leucocyte counts, however, are normal and there is no temperature elevation. It is typical that the attacks recur. There are, anatomically, two kinds of neuroma: 1) axial or plexiform neuroma originating at the deep layer of the mucous plexus and 2) Meissner's plexus ganglioneuromas, involving also Auerbach's plexus and even extending to the mucous plexus. In most cases only microscopical examination can ascertain the diagnosis. (N. H. Isaacson and B. Blades. Arch. Surg. 62: 455, 1951).

DIAGNOSTIC SUGGESTIONS

Poliomyelitis

The most common symptoms of frank poliomyelitis are fever, headache, anorexia, nausea, vomiting, pain in neck, back and legs, constipation, drowsiness and malaise; sore throat is believed to be an important symptom in heralding the bulbar type. Cardinal physical signs are stiffness of neck and back, hamstring tightness and muscular weakness and paralysis. Spinal fluid cell counts are highest in the first week and may be normal again in the fourth week. The protein level is highest in the 4th to 6th week. Negative spinal fluid findings in the first three weeks do not militate against poliomyelitis. Frequently the diagnosis in the beginning can be made only by exclusion; in the differential diagnosis the following conditions, among others, should be considered: Infectious diseases (respiratory, excinthematous, gastro-intestinal); meningitis (pyogenic, tuberculous, syphilitic, lymphocytic); rheumatic fever; brain abscess; osteomyelitis; myositis, trichiniasis, tetanus, osteoarthritis; diabetic coma, hypertensive encephalopathy, drug poisoning; acute polyneuritis, spinal cord injury, lead poisoning, botulism, cerebral vascular accident, congenital heart disease and subacute bacterial endocarditis, rickets, scurvy. (W.C. Campbell. Ariz. Med. 1:25, January 1951)

Attitudinal Pathosis

Attitudinal pathosis is a form of personality disorder in which the patient consciously behaves in a certain way because he thinks he is 'right'. He is not malingering. For instance: "I was injured during the course of my employment: there are compensation laws; I am entitled to compensation; I have a backache which came on after I was injured; therefore, I cannot go back to work until I have received what I believe to be just compensation for my 'injury'." His motivation is a constellation of attitudes around a nuclear core attitude, such as this mentioned, which is faulty. Emotivity is disturbed only secondarily, and a feeling of resentment is the principal reaction. In differential diagnosis from neurosis (traumatic neurosis and compensation neurosis), it is important to be aware of the fact that "the neurotic is motivated by hidden conflicts, narcissistic regression, free floating anxiety and hypochondriacal preoccupations which he recognizes as being illogical (but which he is unable to control), while the sufferer from attitudinal pathosis is motivated by constellations of ideas of which he is consciously aware and which he thinks are logical." (Gordon R. Kamman, Arch. Neurol. & Psychiat. 5:593, May 1951).

Acne Vulgaris

25 patients who did not improve with usual treatment were treated with local application of Premarin cream (preparation of 2.5 mg. of watersoluble equine estrogenes, expressed in terms of sodium estrogene sulfate per gram of a vanishing cream base). On the average the dosis was 5 mg. of estrogenes applied to local areas daily in one or two applications. The duration of treatment ranged from one to seven months, employing a total of 150 to 170 mg. of estrogenes. Of the 25 cases, 15 showed a very satisfactory result, 4 a good one, and 3 a fair one. Three patients had side reactions (itching) and had to discontinue the treatment. (I. Shapiro. Arch. Dermat. and Syphil. February 1951).

Books of General Interest for the Physician

". . . . the Bible contains many references pertaining to medical subjects, especially the laws referring to personal and social hygiene." Thus, the author[1] has examined with meticulous thoroughness both the old and the new testament for their medical contents. There are many interesting discoveries, well compiled and explained; other subjects are interpreted in a rather farfetched way. All in all, the author is correct when he states: "I believe that I have a legitimate excuse for writing another book." The great importance which insects have in human lives, either benefiting or injuring them, has been colorfully narrated by the Curator of Insects at the American Museum of Natural History.[2] This book is so revealing that it will prove to be very useful for any general practitioner. Another volume which will widen the scope of the physician is a presentation of geographical problems.[3] Particularly the second part which deals with environmental aspects and with the progress in the study of climate, soil, meteorology and regionalism are of great medical interest. A book on humanism[4] refers to medicine inasmuch as it gives a philosophical background on the general problems which are concerned with existence. The author's analysis is sytematic and vivid, yet at times dogmatically undogmatic.

1. The Physician Examines the Bible, by C. Raimer Smith, M.D. Philosophical Library, New York, 1950. 394 pages, Cloth.
2. Insects in Your Life, by C. H. Curran. Sheridan House, New York, 1951. 316 pages. Cloth. $3.50.
3. Geography in the Twentieth Century. Edited by Griffith Taylor. Philosophical Library, New York, 1951, 630 pages. Cloth.
4. Humanism as a Philosophy. By Corliss Lamont. Philosophical Library, New York, 1949, 368 pages, Cloth. $3.75.

Books on Internal Medicine

To integrate the diagnosis of pathology of chest organs, Ritvo[1] has prepared an impressive presentation of chest x-ray diagnosis. Procedures and differential diagnosis are amply enlarged upon. The topics are: lungs, mediastinum, diaphragm, pleura, bony thorax and soft tissues of the chest wall, soft tissues of neck, heart, aorta, pulmonary artery, pericardium. This volume will be a valuable addition to any private medical library. In an extensive and instructive way are the laboratory methods described which are clinically important[2]. This is the fourth edition of this well known book; many new subjects have been added and have the contents brought up to date. A book of great assistance in the hand of the specialist[3] is a detailed exposition of clinical procedures in the study of metabolic functions. Biochemical procedures, physiological measurements and clinical laboratory procedures are the main features of this excellent work, which also is distinguished by a comprehensive bibliography. As a matter of fact, many general practitioners are not sufficiently familiar with the close and inseparable con-

nections of medicine and dentistry. A book on oral pathology[4] will be, therefore, a useful means of instruction, especially a work of the scientific standing as this by Kurt H. Thoma which combines histological, roentgenological and clinical aspects and which deals equally profoundly with diseases of teeth, jaws, and mouth; a reference book which is to be highly recommended. Among the annual reviews, the review of physiology[5], edited by Hall is outstanding as it contains a judicious selection of subjects which are related to practical medicine; it will keep the physician abreast of the progress of the basic foundations of medicine. The great interest in virus diseases is reflected in a symposium on this subject[6] which brings to the fore the essential knowledge of virus pathology up to the end of the year 1948. It is a good compilation of the scientific data available.

A rather unusual, but interesting book on the 'cure' of rheumatoid arthritis[7], based on practical experience of 30 years and employing chiefly methods of physical medicine, should be judged as to its value by the reader himself. We believe that such an individualistic opinion should be heard on this still controversial subject. The significance of enzymes in metabolism justifies a brief discussion[8] as presented under the editorship of Esdall. All aspects of this subject are briefly, yet aptly and concisely exhibited. The third edition of the valued English work on poisons[9] has been revised by Stewart. It is of clinical significance for anybody whose practice has leanings to forensic medicine or industrial medicine. A book which is a very laudable enterprise both in its purpose as well as in its performance is Terhune's emphasis on the integration of psychiatry and medicine. These lectures, indeed, build a bridge between internal medicine and psychiatry which will overcome the barriers which still may separate the two specialties.

1. Chest X-Ray Diagnosis. By Max Ritvo, M.D. Lea & Febiger, Philadelphia, 1951, 558 pages, 615 illustrations. Cloth. $.15.
2. Clinical Laboratory Methods. By W. E. Bray, M.D. 4th Edition, St. Louis. The C. V. Mosby Company, 1951, 614 pages. Cloth.
3. Metabolic Methods. Clinical Procedures in the Study of Metabolic Functions. By C. Frank Cosolacio; Robert E. Johnson, M.D. and Evelyn Marek. St. Louis. The C. V. Mosby Company. 471 pages. Cloth. $6.75.
4. Oral Pathology. A Historical, Roentgenological, and Clinical Study of diseases of the Teeth, Jaws, and Mouth. By Kurt H. Thoma, D.M.D. Third Edition. St. Louis, The C. V. Mosby Company. 1950. 1592 pages. Cloth. $17.50.
5. Annual Review of Physiology. V. E Hall, Editor. Volume XIII, 1951. Annual Reviews, Inc. and American Physiologic Society, 1951. 457 pages. Cloth. $6.
6. The Pathogenesis and Pathology of Viral Diseases. ed. J. G. Kidd. Symposium Held at the New York Academy of Medicine December 14 and 15, 1848. New York. Columbia University Press, 1950. 235 pages. Cloth. $5.
7. The Cure of Rheumatoid Arthritis by Physical Medicine. By J. Echterma, M.D. Herald Square Press, Inc., New York. 251 Pages. Cloth. $6.
8. Enzymes and Enzy' e Systems, Their State and Nature. ed. By J. T. Esdall, Harvard University Press. Cambridge, Mass. 1951. 146 pages. Cloth. $2.75.
9. Poisons. Their Isolation and Identification. By Frank Bamford. Third Edition. Revised by C. P. Stewart, Ph.D. The Blakiston Company. Philadelphia. 1951. 361 pages, Cloth. $5.60.
10. The Integration of Psychiatry and Medicine. An Orientation for Physicians. By Wm. B. Terhune, M.D. Grune & Stratton, New York, 1951. 177 pages. Cloth.

SIDE-GLANCES at HISTORY OF MEDICINE

CERVICAL RIB

The first report is credited to Hunauld. Hist del'Acad. Royale de Sciences. Paris. 57.1742.

Books on Obstetrics and Gynecology

The cephalopelvic disproportion is one of the major issues in obstetrical management. The author of this brochure approaches this subject in a methodical way. He describes the pelvic morphology and the examination of the pelvis, then he explains the presentations of the fetus, the mechanism of labor and the various obstetrical procedures such as forceps-operation, breech delivery and version. The book concludes with a short explanation of x-ray technics and methods of estimation of cephalopelvic disproportion. A very useful booklet is Jones'[2] presentations of cardiac disorders in pregnancy. It is a judicious compilation of the literature on this subject and the author's own experiences; a valuable guide for all physicians who practice obstetrics. The inexhaustible subject of dysmenorrhea has been ably broached in a symposium[3] published by Phi Delta Pi. The medical and psychological aspects are set forth and the problems of relief are approached in a concise and critical way.

1. Clinical and Roentgenologic Evaluation of the Pelvis in Obstetrics. By Howard C. Moloy, M.D. W. B. Saunders Company, Philadelphia and London. 1951, 119 pages, cloth, $2.50.
2. Heart Disease in Pregnancy. By A. Morgan Jones, M.D. Grune & Stratton, Inc. New York, 1951. 51 pages. Cloth, $1.50.
3. Symposium on Dysmenorrhea. A Contribution to the Professional of Physical Education. By Phi Delta Pi. National Professional Physical Fraternity for Women. Phi Delta Pi Fraternity, Chicago, Ill. 61 pages. Paper. $1.00.

Books on Cancer

An account of all malignancies encountered in the organs of the female genital tract[1] is a very welcome addition to the literature on cancer. The author describes with thoroughness diagnosis and treatment of the malignant lesions of vulva, vagina, cervix, uterus, ovary, tubes and finally, pregnancy complicated by malignant neoplasms. Critical statistical evaluations and comprehensive literature references enhance the value of the book. The high rate of incurable malignancies makes the problem of cancer disability a formidable one. It was, therefore, a very commendable idea of the Institute of Medicine in Chicago to publish a survey on the terminal care of cancer patients.[2] Every general practitioner who is daily confronted with insufficient available services to facilitate the lot of these unfortunates will be pleased to read this survey from the practice for the practice.

1. Malignant Disease of the Female Tract. By Stanley Way. The Blakiston Company, Philadelphia, 1951. 279 pages, Cloth. $5.00.
2. Terminal Care for Cancer Patients. A Survey of the Facilities and Services available and needed for the terminal care of cancer patients in the Chicago Area. The Central Service for the Chronically Ill of the Institute of Medicine of Chicago. Chicago, Ill. 1950. 211 pages. Cloth.

NOTES on MEDICAL STATISTICS

INFANTILE PYLORIC STENOSIS

The incidence ranges from 0.2 to 0.5 per cent of all infants; the syndrome is most common in Anglo-Saxon peoples (P. W. Schafer. Pathology in General Surgery. The University of Chicago Press, 1950). The same author states that the Ramstedt operation is followed by a cure in 95% and carries a mortality rate of 2%.

NOTES on MEDICAL STATISTICS

NEW PRODUCTS

Arobon. Contains specially processed carob flour as its chief therapeutic ingredient.

Indication: control of diarrhea in infants, children and adults.

The Nestle Company, Colorado Springs, Col.

Cortogen Acetate Ophthalmic Suspension. Each cc. contains 5.0 mg. cortison acetate, suspended in a buffered isotonic low surface tension aqueous vehicle.

Indications: blepharitis, spastic entropion due to local irritation, conjunctivitis, corneal ulcer, interstitial keratitis, keratides, herpes zoster ophthalmicus, scleritis, episcleritis, iritis. One drop instilled into the eye every 1 to 4 hours.

Schering Corporation, Bloomfield, New Jersey.

Neocylate with Colchicine. Each Entab contains: sodium salicylate, 0.25 Gm., para-aminobenzoic acid, 0.25 Gm., ascorbic acid, 20 mg., colchicine, 0.25 mg.

Indications: gout and gouty arthritis. Initial dose is 1/50 to 1/60 gr., followed by 1/100 to 1/120 gr. every 2 or 3 hours (including night).

The Central Pharmacal Company, Seymour, Indiana.

Provite B with Vitamin C. Capsules containing Thiamine hydrochloride, riboflavin, pyridoxine, calcium patothenate, niacinamide, vitamin B_{12}, ascorbic acid, choline dihydrogen citrate, inositol, secondary liver fraction.

Ives-Cameron, Inc.

Terramycin Soluble Tablets. Each tablet contains 50 mg. of terramycin hydrochloride. The tablets are designed for the pharmacist in preparing special medications where a potent antibiotic is needed, yet in many cases better stability can be obtained by giving the patient the tablets to be crushed into the medication before use. This is the preferred technique for adding terramycin soluble tablets to vasoconstrictors, wet dressings, irrigating solutions, cough syrups, topical lotions, argyrol, neosilvol, gentian violet, etc.

Chas. Pfizer & Co., Inc.

SIDE GLANCES at the HISTORY OF MEDICINE

ORTHOPEDICS

The term orthopedics (orthopedie) was coined by Nicholas André, Profesor of Medicine at the Royal College at Paris, France. He lived from 1658 to 1742 and published in 1741 a work of two volumes: "L'orthopédie ou l'art de prevenir et de corriger dans les enfants diformités du corps" (Orthopedics or the art to prevent and to correct deformities of the body in children). The term orthopedics was a combination of the Greek words orthos and paidios (to straighten out a crooked child).

SEND FOR THIS LITERATURE

1. **Allergies** (colds)—new antihistamine
2. **Dietary deficiencies**—daily vitamin supply
3. **Respiratory infections**—penicillin inhalation
4. **Psoriasis**—oral drug
5. **Bronchial asthma**—sustained management
6. **Respiratory stimulant**—for the newborn
7. **Cough**—antitussive syrup and tablets
8. **Sulfonamide** — triple sulfa combination
9. **Rheumatic fever**—management
10. **Antihistamines**
11. **Functional Uterine Bleeding** — management
12. **Pain control**—saddle block and higher spinal analgesia
13. **Whooping cough**—relief
14. **Premature labor** — habitual and threatened abortion—management
15. **Congestive heart failure**—mercurial diuretic
16. **Birth control**—diaphragm and jelly
17. **Sore throat**—alkaline germicidal solution
18. **Cough**—management
19. **Acute bronchitis**—treatment
20. **Inflammatory glandular swelling**—topical decongestive treatment
21. **Insomnia**—gentle sedation
22. **Appetite**—tonic
23. **Functional amenorrhea** — management
24. **Peptic ulcer**—demulcent
25. **Postoperative abdominal distention** and urinary retention — prevention and management
26. **Hemorrhoids**—relief of pain and inflammation
27. **Skin affections**—therapy
28. **Gastric neurosis**, pyloris spasm, nausea—management
29. **Sedative**—without habit formation
30. **Arthralgia** (bursitis), lumbago—ointment
31. **Pregnancy test**
32. **Allergies**—management
33. **Bronchial asthma**—prolonged relief
34. **Infant feeding**—milk-free formula in allergic reactions
35. **Infant nutrition**—information
36. **Cough**—palatable creosote preparation
37. **Eye hygiene**—decongestive lotion
38. **Headache**, neuralgia—pain relief
39. **Obesity**—dietary management
40. **Arthritis**—colloidal gold sulfide therapy
41. **Trichomoniasis**, moniliasis—vaginal suppositories
42. **Asthma**—symptomatic relief
43. **Pruritus**—management
44. **Cardiovascular disorders** — management
45. **Blood sugar**—12 minute test
46. **Urinalysis**—1 minute test
47. **Gout, Gouty Arthritis**—specific therapy

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